

THE DOCK & HARBOUR AUTHORITY

No. 134. Vol. XII.

DECEMBER, 1931

Editorial.

The Port of Sydney, New South Wales—Glebe Island, the Wheat Loading Terminal.

The wheat loading terminal of a vast wheat producing country is of paramount importance as regards quick despatch and quick turn round of vessels, and the port of Sydney, which is the chief exporting centre for the State of New South Wales, has recently laid down at Glebe Island vastly improved and up-to-date facilities for the quick loading of wheat.

New South Wales has for a considerable number of years past been an important wheat producing State and the need for a wheat loading terminal which could be worked economically and expeditiously is now supplied by the plant laid down at Glebe Island.

The wheat terminal is triangular in shape and has an area of approximately 41 acres and from a rail and shipping point of view its geographical position is one of its significant features and it is well served by Government railways from all parts of the State. The available depth of water at the wharves is 35-ft. and the largest vessels entering Sydney Harbour can approach the berths at any state of the tide.

The new terminal has a storage capacity for bulk wheat of 6,750,000 bushels or approximately 182,000 tons. The wheat is loaded into ships by a system of belt conveyors, the total shipping capacity of the plant being 1,400 tons per hour. It is claimed to be one of the speediest wheat handling plants in the world.

Some extensive new works have latterly been undertaken and these consist of 2 storage sheds having a total capacity of 1,590,000 bushels and 1,300-ft. of wharfage.

An illustrated article describing the wheat loading facilities at present available at Glebe Island and also the extensions which are at present in hand is given on another page and this also forms the Supplement for this month.

Annual Meeting of the Mersey Docks and Harbour Board.

At the annual meeting of the Mersey Docks and Harbour Board which was held on November 19th, the report of the year's working showed that Liverpool—in common with other ports in the country—was feeling the general trade depression.

The revenue, in comparison with the previous year, showed a falling off of £355,267 and the number of vessels using the port dropped by 1,040, the tonnage decrease being 1,471,592.

Isle of Man Harbour Works.

Under the Isle of Man Harbours Act, the Harbour Commissioners have obtained powers to acquire land for the protection of the face of the Commissioners' quarry at Douglas Head and to facilitate the future development of the quarry and extension of the Battery Pier. The object of the purchase is to obtain rock for filling in the extension of the Red Pier with what is termed "heart." The same policy was adopted in the erection of the Victoria Pier and the Battery Pier. The Isle of Man Tynwald has authorised a loan for a sum not exceeding £220,000 to carry into effect the extension of the Red Pier and the erection of the causeway connecting the Red Pier with the Victoria Pier, Douglas. The work may be spread over several years, in which case it will be a long time before the borrowing powers are exhausted.

Limerick Dock Extension.

As the result of negotiations between the Limerick Harbour Commissioners and the Governors of the Bank of Ireland, it has now been definitely agreed by the Bank to grant the loan of £100,000 required for dock extension and rail connection of the Port of Limerick with the Great Southern Railway's terminus. It is expected that the total cost of the scheme will be £200,000, and it is proposed to raise part of this sum locally. The main scheme is the extension of the present

docks for 600-ft. in a westerly direction. There will be a new entrance built on the west side, and the general effect will be to increase the quayage in the harbour by about 50 per cent. The extension will enable ships to enter and turn in the dock preparatory to steaming out again. At present ships have to turn about in the river before entering the dock. The walls of the new dock will be of mass concrete on a rock foundation. There will be two new jetties and a new pair of steel dock gates with the latest hydraulic machinery for opening and closing. The new extension will also be two feet deeper than at present. The new tramway will link up boat and rail services, and will be worked by the Harbour Commissioners with electric locomotives.

Cochin's New Dry Dock.

Cochin's new Dry Dock, which has cost the authorities four lakhs of rupees, is 240-ft. long, 44-ft. wide and 14½-ft. deep over the sill, and can accommodate all the dredging craft of South India. There is very little leakage into the Dock, which has proved completely stable and satisfactory. It has already paid for itself by savings on dockings, and the cost of maintenance and repairs is borne by docking fees charged on craft other than those belonging to the port.

Reclamation Work on Southampton Docks Extension Scheme Proceeding Satisfactorily.

Since dredging for the Docks Extension on the Western Shore at Southampton was commenced, 9,500,000 cubic yards of mud and more solid materials have been lifted from the bed of the River Test. Mud to the extent of 5,750,000 cubic yards has been dumped on the approved grounds outside the Isle of Wight, and material amounting to 3,750,000 cubic yards, being suitable for making enclosing banks and for reclamation purposes, has been so utilised.

There are now 55 acres of reclaimed mudland, including the 18 acres which were won back in the early days of the scheme, and now in use as a contractors' yard in the vicinity of the Royal Pier. Therefore 37 acres have been retrieved since December 1st, 1930, when the special reclamation hopper-dredger, "Foremost Chief," commenced activities. There are 187 acres of mudland to be converted into dry ground for the first section of the scheme. The "Foremost Chief" is capable of pumping ashore 50,000 tons of dredged material a week.

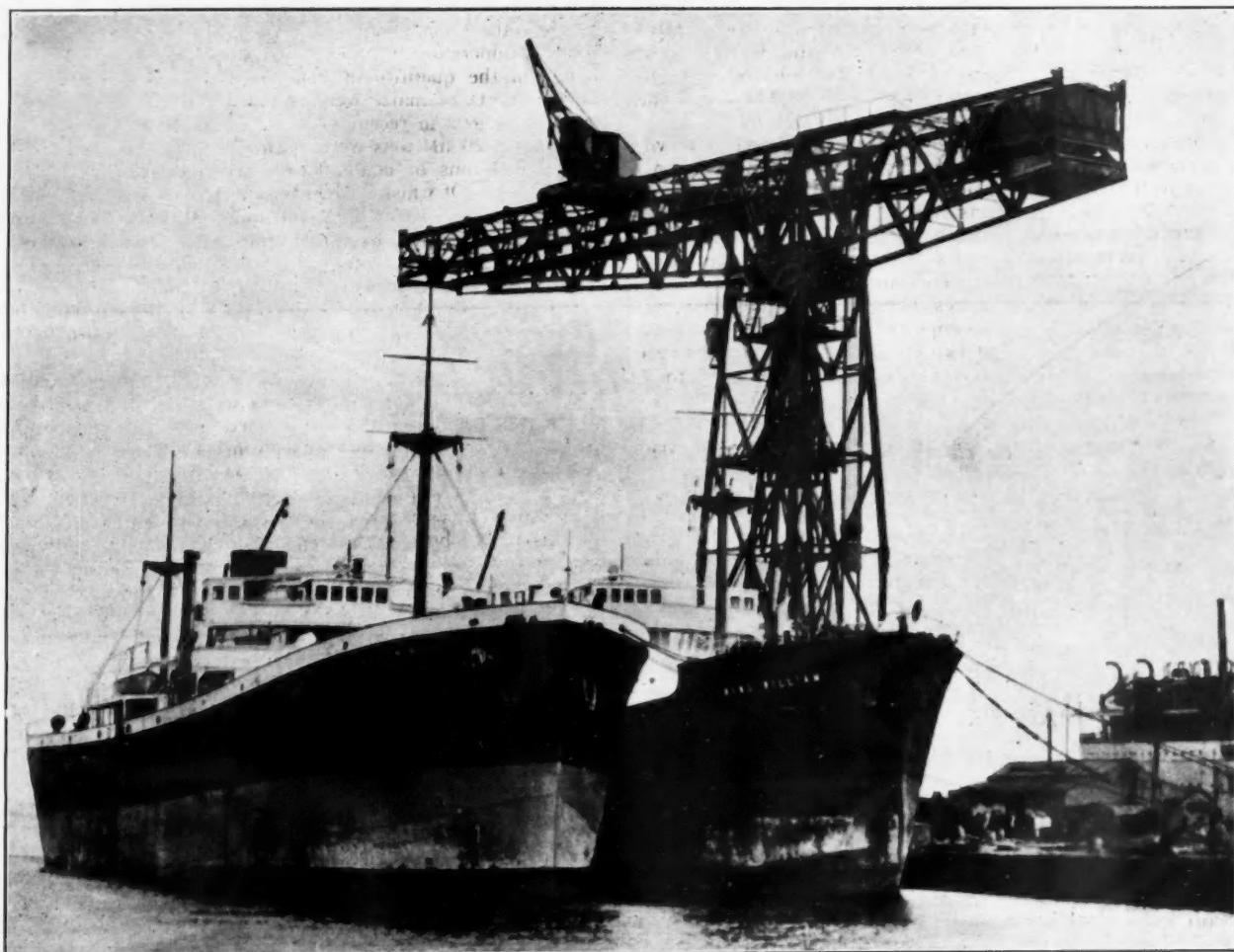
There is a channel with a depth of 35-ft. l.w.o.s.t. by which the new berths will be approached, and dredging has also been carried out alongside the new quay wall for a length of 1,000-ft. and on the swinging ground which has been created at Millbrook, where the world's largest graving dock is under construction.

The sinking of the 78 giant monoliths, on which the new quay wall is being built, is completed, and the superstructure is being commenced. Foundations for passenger and cargo sheds are ready. The first two sheds will be 880-ft. in length, with a width of 150-ft., and the next pair will be 650-ft. long, with a similar width.

The first section of the extension will provide 3,800-ft. of quayage, fronted by water with a depth of 45-ft. l.w.o.s.t.

Rapid progress is also being made on the second section of the extension. The reclamation bank has been completed for 2,000-ft. of the total length of 3,500-ft. As in the case of the first stage, monoliths will be sunk through the bank, which has a brushwood revetment. Twenty of the monoliths are now in the process of sinking, and the steel "shoes" for another eight are in position. Altogether there will be 70 monoliths for the 3,500-ft. of quay. When sections 1 and 2 are completed there will be 7,300-ft. of deep water quay, and an additional 415 acres of land within the port's boundaries.

Irish Harbour Matters



150 tons Crane, Belfast Harbour.

Cork

Cork Harbour Board Chairman Re-elected.

FOR the fourth year in succession, Mr. Richard Wallace, P.C., has been unanimously re-elected Chairman of the Cork Harbour Board. Returning thanks, he said he thought that the chairmanship should not be held by any one member for more than a year. He detailed improvements made in the port during the past ten years. The Board's balance sheet, he said, showed at the end of the financial year in July a surplus of approximately £7,500. During the nine months ended 30th September, the number of vessels that had passed in and out of the port was 1,781, tonnage handled being 3,080,000. In the same period passengers on trans-Atlantic liners numbered 10,074, notwithstanding the decline in emigration.

Waterford

Progress in Waterford.

Although not a city of great size, Waterford is an important port and tends to become larger. As it is it provides business for twelve general cargo-passenger boats per week. During 1930, no fewer than 1,400 ships entered the port, although business generally was bad. In recent years the Waterford Harbour Commissioners have made many changes with a view to coping with modern shipping demands. The first great scheme carried out by the Board was the building of a reinforced concrete wharf 300-ft. long to provide accommodation for Continental, general and bulk cargo trade in order to abolish the practice of carrying cargo on men's backs, or in trucks, over the floating pontoons or stages. This wharf, named after Sir Henry Forde, an ex-chairman of the Board, cost £3,200, and was equipped with a 20-ton crane.

The next improvement was a £10,000 dredging scheme to increase the depth of the grain elevator berth at low water from 22 to 25-ft. Although large bulk cargo vessels which spend several days discharging cargo can accommodate their arrival and departure to the tides, general cargo and passenger steamers which reach Waterford and return the same day must be able to travel in any state of the tide. In order to maintain the cross-Channel trade, the Commissioners were consequently compelled to meet this situation, and at a cost of £22,000,

which was regarded as exceptionally favourable, the shale part of the river was dredged from 14 to 18-ft. Another enterprising move was the installation of pontoons for the shipping of cattle. Animals may thus be drawn on to the boats direct.

Sligo

Sligo as a Port.

As a distributing centre, it is claimed that no other provincial town in Ireland has the facilities offered by Sligo. This is the only town in the Free State which has direct railway communication with Northern Ireland, with Dublin and with the South. By devoting nearly all revenue to improvements, the Sligo Harbour Commissioners have already carried out schemes to a total cost of £50,000. The channel from Rosse's Point to Sligo has been improved, and a training wall built which has resulted in the formation of a new channel. A general survey of the harbour was recently made as a preliminary to dredging operations which would open up a new channel, and so enable large vessels to come from the sea to the mooring buoy without waiting for tides. No less than £10,000 was spent in 1930 on reconstruction in concrete of the old wooden jetties at the deep water berths. One of the most notable enterprises in connection with Sligo port is the outlay of £50,000 by the Sligo Navigation on a steamer of the latest type for carrying cattle, and which is equipped with refrigerating machinery, and can do the Liverpool run in 24 hours.

Belfast

Affairs of Belfast Port.

The tonnage returns for the port of Belfast for the nine months ending 30th September have just been issued and show that the volume of trade has been well maintained, notwithstanding the continued depression, now happily disappearing. The returns were issued by the Harbour Commissioners and included the figures for the corresponding period last year, so that one can see how trade was affected by the demands for goods.

Coal imports are still a test of local industrial activity, although less so than before the wonderful developments in electric and oil power. The total for the nine months was

Irish Harbour Matters—continued

925,000 tons, an increase of 6,000 tons, compared with the previous year. The figures relating to shipbuilding industry reflected the depression. During the nine months only 7,887 tons of iron and steel castings were imported against 12,917 tons. In regard to sheet and plate iron the figures were 19,290 and 43,847 respectively, while 26,230 tons of wrought and bar iron were brought in, compared with 43,838 tons. The imports of rivets totalled 743 tons, against 1,291 tons.

The statistics relating to the linen industry showed a downward direction, but the signs point to a definite improvement. Exports of linen for the nine months totalled 22,871 tons, against 23,594 tons. Imports were 975 tons against 1,160 tons. Linen yarn came to 2,841 tons, against 2,172 tons, while the exports totalled 2,106 tons, compared with 3,028 tons. Of flax, 12,886 tons were landed and 286 tons sent away, the corresponding figures being 15,643 tons and 986 tons. The total of flax seed imported was 459 tons, against 1,081 tons a year ago. The exports of the same article were 28 tons against 158 tons. Tow imports came to 9,218 tons, an increase of 4,503 tons, the exports being 186 and 246 tons respectively.

The outbreak of foot and mouth disease earlier in the year affected the live stock end of the agricultural industry, the export of both cattle and sheep and lambs falling considerably. Only 54,832 head of cattle were shipped, against 76,111, while the number of sheep and lambs went down from 51,724 in the nine months of last year to 39,882 this year. The number of pigs sent away, however, rose from 10,887 last year to 13,201. Exports of fowl totalled 3,994 tons, against 3,714 tons last year.

Bacon exports showed a drop of 207 tons to 4,484 tons. Exports of ham rose 200 tons to 2,337 tons, and imports from 363 to 491 tons. Of eggs, 17,369 tons were shipped against

15,877 tons a year ago. Hay exports went down from 4,894 to 599 tons, while those of oats rose from 279 to 1,153 tons. Wheat exports, however, declined from 18,258 to 11,417 tons. On the other hand no less than 76,885 tons of wheat were landed, an increase of 12,000 tons, while there was no material change in the quantity of flour imported, 52,357 tons. Very heavy imports of maize were received, the total being 280,350 tons, the largest in recent years.

Of sugar, 26,704 tons were discharged, a substantial increase, while 6,063 tons of confectionery were imported, an increase of 400 tons. Of whisky 1,820 tons were exported and 502 tons imported, compared with 2,059 and 460 tons. The imports of ale and beer fell from 3,526 to 3,330 tons, 101 tons of aerated waters were brought in, an increase of 41 tons, while 3,249 tons were sent away, a fall of 444 tons. There was an increase of 1,180 tons in the exports of manufactured tobacco to 3,918 tons, but the imports dropped from 1,434 to 1,336 tons.

A total of 5,047 motor cars were imported, compared with 4,791, and 673 commercial motors were landed, against 645. Motor bicycles brought over declined from 415 to 273, while the imports of motor spirit rose from 44,502 to 47,386 tons.

At a meeting of the Belfast Harbour Board on the 3rd inst., Mr. R. E. Herdman, D.L., presiding, the Harbour Master (Captain McIntyre) reported that 309 vessels arrived at the port from October 18th to 31st, made up as follows:—Coastwise and cross-channel, 276; foreign, 22; non-trading, 11.

The total tonnage of the vessels arriving from January 1st to October 31st was:—Coastwise and cross-channel, 2,371,448, an increase of 12,349 over the corresponding period of last year: foreign, 639,084, an increase of 24,266; non-trading, 71,909, a decrease of 38,761; grand total, 3,082,441, a decrease of 2,146.

Aden Port Trust.

The returns for the month of August, 1931, of shipping using the Port were as follows:—

Merchant Vessels over 200 tons	No.	Tonnage
" under 200 tons	3	486
Government Vessels	3	4,942
Dhows	33	714
PERIM.		
Merchant Vessels over 200 tons	20	69,853

The total value of Imports excluding Government stores was Rs.41,46,000/- as compared with 46,09,000/- for August, 1930, and of Exports Rs.20,20,000/- as compared with Rs.26,58,000/-.

The total value of both Imports and Exports together was Rs.61,66,000/- as compared with Rs.72,67,000/- for the corresponding month last year.

Imports during the month were above those for August, 1930, in the case of grain, pulse and flour, raw hides, sugar, grey piece goods, white piece goods, printed or dyed piece goods and manufactured tobacco; and below in the case of coffee,

TRADE OF THE PORT.

Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	2,635	47,444	0	0
Coffee	Cwts.	4,903	1,70,196	5,666	2,48,617
Grain, Pulse and Flour	"	22,921	1,20,480	11,711	66,728
Gums and Resins	"	320	9,721	1,194	24,091
Hardware	"	0	4,721	0	9,630
Hides, raw	No.	3,970	5,603	8,460	11,296
Oil, Fuel	Tons	34,186	10,21,680	0	0
" Kerosene	Gls.	12,608	9,456	3,508	2,631
" Petrol	"	66,528	70,271	1,704	2,207
Salt	Tons	0	0	19,020	2,28,240
Seeds	Cwts.	2,063	20,279	627	6,950
Skins, raw	No.	128,545	74,404	193,205	1,47,754
Sugar	Cwts.	34,624	2,08,494	13,260	83,566
Textiles—					
Piece Goods, Grey	Yds.	3,404,752	5,21,735	2,337,936	3,12,860
" " White	"	511,145	1,06,566	202,400	46,628
" " Printed or Dyed	"	748,041	1,61,699	608,405	1,59,490
Twist and Yarn	Lbs.	209,146	99,990	113,876	57,593
Tobacco, Unmanufactured	"	808,824	1,51,046	454,273	78,262
" Manufactured	"	46,648	54,086	17,080	14,047
Other Articles	No. of Pkgs.	49,554	7,10,507	10,871	2,74,228
Treasure, Private	"	0	5,74,306	0	2,45,576
Total	—	—	41,45,634	—	20,20,394

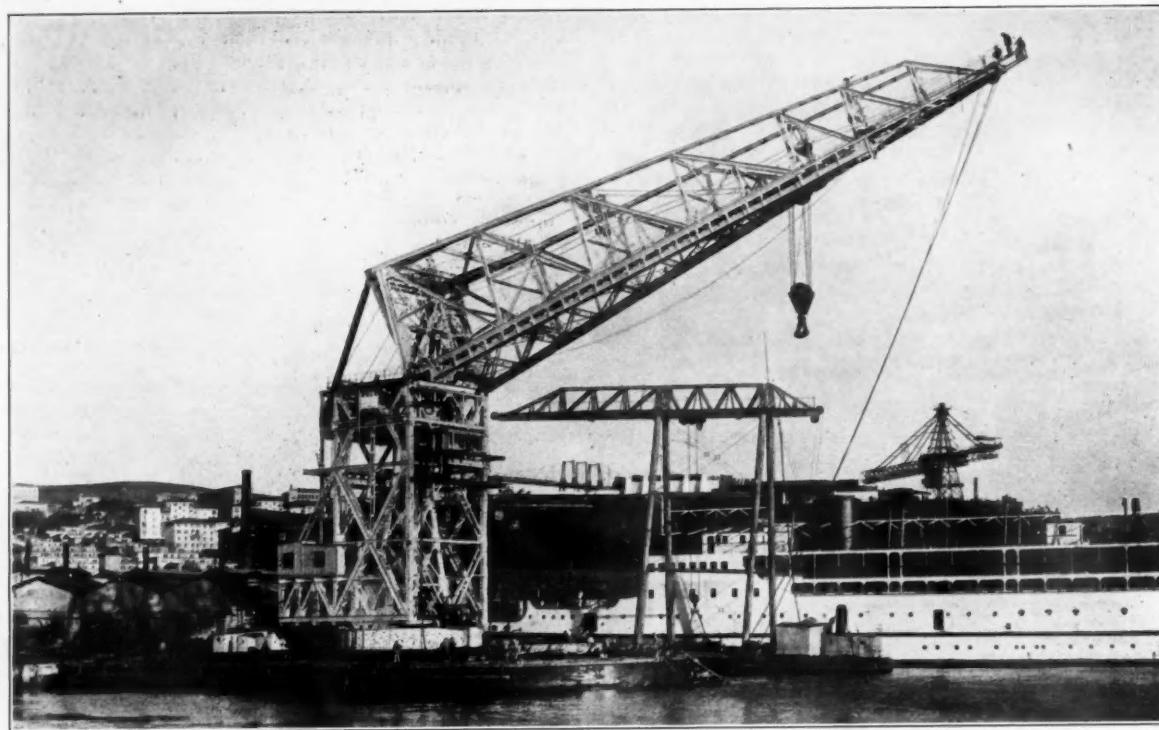
The number of merchant vessels over 200 tons that used the Port in August, 1931, was 108 as compared with 130 in the corresponding month last year, and the total tonnage was 444,000 as compared with 507,000.

Excluding Coal, Salt, Fuel oil and Military and Naval Stores and transhipment cargo, the total tonnage of Imports in the month 7,200 and of Exports 3,200 as compared with 6,300 and 3,700 respectively for the corresponding month last year.

gums and resins, hardware, seeds, raw skins, twist and yarn, unmanufactured tobacco and private treasure.

Exports were above those for August, 1930, in the case of raw hides, seeds and printed or dyed piece goods; and below in the case of coffee, grain, pulse and flour, gums and resins, hardware, raw skins, sugar, grey piece goods, white piece goods, twist and yarn, unmanufactured and manufactured tobacco and private treasure.

Italian Harbour Affairs



The 150-ton Floating Crane built at the San Marco Shipbuilding Yard at Trieste.

THE statistics concerning shipping at Italian ports during the first nine months of 1931 give a better idea than those for shorter periods about the position of traffic at the various harbours. Shipping as a whole has been showing a slight decrease, both in connection with imports and exports, as will be seen from the following figures concerning traffic at the chief Italian ports:—

		Ships Arrived and Cleared No. N.R.T.	Imports Tons	Exports Tons
Savona ...	1930	1,880 1,747,790	1,228,085	182,913
	1931	1,866 1,719,383	1,048,730	146,213
		—14 —28,407	—179,355	—36,700
Genova ...	1930	7,410 14,819,221	4,620,560	660,082
	1931	6,987 14,570,149	4,368,842	636,267
		—423 —249,072	—251,718	—23,815
Leghorn ...	1930	5,463 5,585,752	1,164,450	397,793
	1931	5,094 5,400,048	866,952	289,631
		—369 —185,704	—297,498	—48,162
Civitavecchia ...	1930	2,199 2,844,199	737,901	61,561
	1931	1,914 2,552,430	628,122	73,774
		—285 —291,769	—109,779	+12,213
Napoli ...	1930	13,696 13,310,312	1,272,737	252,001
	1931	13,453 14,830,275	1,278,973	257,690
		—243 +1,519,963	+6,236	+5,689
Brindisi ...	1930	1,766 3,153,822	72,340	12,163
	1931	1,868 3,362,573	83,159	9,235
		+102 +208,751	+10,819	—2,928
Bari ...	1930	2,584 1,996,154	238,312	45,305
	1931	2,575 2,145,867	227,473	41,295
		—9 +149,713	—10,839	—4,010
Ancona ...	1930	4,588 1,870,498	355,447	40,013
	1931	3,154 1,755,299	349,876	53,706
		—1,434 —115,199	—5,571	+18,693
Venezia ...	1930	5,683 6,385,187	1,892,987	843,935
	1931	5,535 6,224,756	1,749,886	357,348
		—148 —160,431	—143,101	+18,413
Trieste ...	1930	26,598 7,406,250	1,184,592	594,263
	1931	25,857 7,487,626	1,339,047	495,731
		—741 +81,376	+154,455	—98,532
Fiume ...	1930	9,451 3,755,011	329,112	218,103
	1931	9,241 3,356,463	253,339	168,186
		—210 —398,548	—75,773	—49,917
Catania ...	1930	3,788 2,999,830	332,657	120,069
	1931	3,695 3,007,997	321,762	118,731
		—93 +9,167	—10,895	—1,398
Palermo ...	1930	4,324 4,726,994	438,749	132,978
	1931	7,724 5,393,546	369,957	107,585
		+3,400 +666,552	—68,792	—25,393

It should be noted that on the West Italian coast the largest depression has been shown in shipping at Leghorn, followed by Genoa, Savona and Civitavecchia. However, it ought to be noted that, for example, at Genoa about 60 per cent. of the decrease is due to the smaller arrivals of coal. In any case, the decline which has been noticed in shipping at Genoa is only 5 per cent. of the total shipping, whereas at Rotterdam traffic during the period under review has shown a reduction of 15 per cent., which confirms the satisfactory condition of Italian ports. At Naples, Brindisi and Trieste shipping has shown an increase, Naples still occupying the first place among Italian ports in connection with tonnage arrived and cleared, while it should be noted the increasing progress of traffic at Brindisi, which is undoubtedly the result of improved shipping connections which are offered at this port to trains from North Europe for the Near East, Levant and Egypt.

The statistics concerning the main items of trade at the chief Italian ports are shown in the schedule at the end of this article.

It clearly appears that while in most of the ports there have been considerable decreases in coal arrivals, cotton unloaded has shown a smaller decline, while the cereal and oilseed imports have shown an increase. Taking into consideration the wheat crop prospects, it is likely that in the course of the next few months cereal imports will decrease. It should be noted, however, that cotton and wool industries in Italy have considerably improved and that imports of raw wool and cotton are likely to show an increase.

Steps are being taken to increase transit trade through Italian ports. Special attention is being paid to Swiss transit trade through Genoa, and recently the Italian State Railway Administration has cut down tariffs from 10 to 30 per cent. on shipments through the main Italian port to and from Switzerland. It is a fact that from January to September, 1931, transit trade through Genoa has shown an increase of about 3,000 tons. It is not much, but if the general economic crisis is taken into account, this small figure can be regarded as a success.

The executive committee of the Consiglio Provinciale dell'Economia di Savona (Chamber of Commerce and Industry) has approved a resolution to which the attention of the Government has been drawn for the need for increased quayage, increased depth of water, and improvements to some of the railway facilities in the port of Savona. The Provveditorato delle Opere Pubbliche per la Puglia at Bari has taken immediate steps for commencing harbour enlargements and improvements at Taranto, Monopoli, Rodi and Vieste.

In the course of the last meeting of the executive committee of the Consorzio Autonomo del Porto di Genova it was decided to carry out the following works:—(1) the replacing of the crane of 1.5 tons with one of 3 tons at the Genoa Di Negro

Italian Harbour Affairs—continued

Railway Station; (2) the completion of the quay on the waterfront of the cold storage of the Calata Gadda; (3) the demolition of warehouse No. 5 on the Andrea Doria Pier and its reconstruction on the eastern side of the Ponte Parodi, etc. In connection with shipping at Genoa, it may be interesting to note that during the period from January to September, 1931, the total tonnage drydocked at Genoa included (on the "Alle Grazie" Docks) 382 steamers representing 2,137,367 gross tons, 9 motor vessels and 2,961 gross tons, 17 sailing vessels and 4,644 gross tons, and 25 various ships representing 4,388 gross tons; that is a total of 433 ships and 2,149,360 gross tons, while the tonnage drydocked in the "Darsena" Docks included 49 steamers and 40,698 gross tons, 6 motor vessels and 2,056 gross tons, 10 sailing vessels and 2,860 gross tons, and finally 83 various ships and 4,807 gross tons, representing a total of 148 ships and 50,421 gross tons.

An item of interest in connection with Italian harbour engineering has been the construction of the 150-ton floating

pontoon at the Cranes and Bridges Department of the Cantieri Navali Riuniti at Trieste. Actually this pontoon has been built in connection with the t.s.s. "Conte di Savoia" the 48,000 gross tons liner of the Lloyd Sabaudo, but it should be noted that the Azienda dei Magazzini Generali at Trieste (Trieste Harbour Board) has agreed to take it over when the "Conte di Savoia" is completed. It should be noted that the pontoon can lift weights of 150 tons to a height of 45 metres from the water surface. The whole machinery is driven by electricity produced by a Diesel electric group which is coupled also to the electric propelling machinery of 300 h.p. ensuring a speed of 4 knots to the 2,050 tons displacement of the pontoon.

According to cables from Naples, it would appear that the first portion of the maritime passenger station under construction at the Molo Beverello is to be opened on the arrival at Naples of the Canadian Pacific liner "Empress of Britain" on a pleasure cruise. The second section will be inaugurated during 1932.

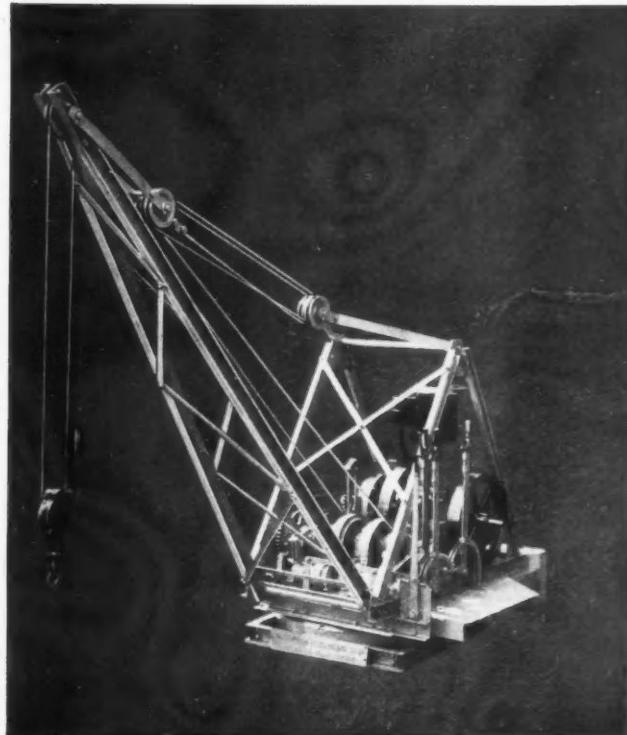
	COAL	CEREALS		COTTON		OIL SEEDS	
		1931 Tons	1930 Tons	1931 Tons	1930 Tons	1931 Tons	1930 Tons
Genoa	1,956,122	2,059,428	809,147	742,460	88,095	101,600
Savona	921,569	1,051,995	821	10,025	407	—
Leghorn	508,402	666,091	71,124	93,922	1,127	2,135
Civitavecchia	476,765	524,523	53,420	55,282	—	267
Naples	541,424	542,867	352,650	268,298	4,579	6,808
Palermo	118,327	231,075	10,500	22,435	3	—
Catania	92,861	89,111	64,437	46,846	—	—
*Trieste	315,406	292,450	64,394	4,874	31,007	33,230
Fiume	31,534	40,945	8,567	1,704	1,043	179
Venice	851,433	912,847	165,993	164,067	29,257	31,827
Ancona	225,526	345,554	30,110	20,194	48	25
Bari	80,243	87,073	61,345	24,586	—	—
						123,121	77,600

*For period January-July only.

The "Epic" Mobile Crane

The latest production of the British Steel Piling Co., Ltd., is the "Epic" Mobile Crane, which will undoubtedly find a valued place in the contractor's equipment.

This new crane is extremely useful for occasional lifts in the yard and warehouse, also for building and excavating contracts, bridge construction, etc., and can at any time be mounted on a lorry in the event of its being required on any other section of the work that is being undertaken.



The "Epic" Mobile Crane.

The "Epic" crane is designed to lift a load of one ton at a maximum radius of 10-ft. on a two-part rope at a speed of 50-ft. per minute, or half a ton on a single rope at 12-ft. 6-in. radius at a speed of 100-ft. per minute.

The jib can be luffed to any radius required to a minimum of 4-ft. 6-in.

Slewing gear is provided so that the crane can revolve through a complete circle in either direction.

The driving power for the crane is supplied by a 6½ h.p. "Lister" engine, which is fitted with a combined speed reduction and clutch which allows the engine to be started up without load.

Another interesting point regarding this crane is that by removing the jib the hoist portion can be used for pile-driving, hauling wagons and hoisting work generally.

Another interesting addition to the British Steel Piling Co., Ltd.'s products is a new 14/10 Wonder concrete mixer.

Any of our readers who are interested can obtain leaflets describing these two new productions on application to the British Steel Piling Co., Ltd., 54a, Parliament Street, London, S.W.1.

New Granary for Leith

A new concrete granary, with a total storage capacity of 25,000 tons of grain, is to be built at the Imperial Dock, Leith, to replace the grain warehouse which was destroyed by fire in January, 1930. The Leith Harbour and Docks Commissioners have now placed the order for the machinery and equipment for the new granary with Messrs. Henry Simon, Ltd., the well-known firm of granary engineers, of Cheadle Heath, near Manchester, the total value of the contract being in the neighbourhood of £40,000.

The order comprises the whole of the conveying, elevating and weighing machinery, the necessary electrical equipment, electrical grain temperature indicating apparatus and a complete dust collecting plant. There will be two main intake bulk conveyors, each having a capacity of 300 tons of grain per hour, feeding five elevators within the granary, which will lift the grain to the top of the building. The grain will be weighed on five 3-ton automatic weighers and delivered by further conveyors either to the storage bins or direct to bulk railway wagons. Below the storage bins will be five conveyors, each capable of carrying 150 tons of grain per hour, by means of which grain will be discharged from the granary. Twelve sack weighing machines of the portable automatic type will be provided under the delivery bins for loading-out grain in sacks either by rail or road.

The temperature recording apparatus will indicate the temperature of the grain in every storage bin at every ten feet of depth.

The whole of the machinery will be operated by electric motors.

Notes from Far Eastern Ports



Traffic Congestion on the West Quay, Madras.

Ceylon

Colombo's Foreign Trade.

THE trade position of Ceylon during the nine months of the current year is shown by the Customs Returns, just available, as distinctly unfavourable as compared with 1929 and 1930. The trade figures for the period during the three years are shown in the following statistics of imports and domestic exports:—

	1929 Rs.	1930 Rs.	1931 Rs.
Imports	... ... 305,045,671	239,034,519	166,562,577
Exports	... ... 291,197,788	231,541,956	156,821,262
Unfavourable Balance	13,847,883	7,492,563	9,741,315

The figures show the extent of the depression in the Island's export trade, which is concerned chiefly with the staple agricultural products of tea, rubber and coconuts, and the consequent effects on the import trade in manufactured articles, finished materials and foodstuffs required to supplement local resources. The figures exclude imports which have been re-exported and do not take into account the imports and exports of bullion and specie. According to Customs Returns the exports of Ceylon produced rubber during the nine months ending September amounted to 100,940,422 pounds and the value amounted to Rs.14,719,729. During the same period last year the quantity exported was 125,700,568 pounds and the value was Rs.38,832,824. The exports of Ceylon tea from January to September this year amounted to 187,245,533 lbs. valued at Rs.103,763,057 against 188,067,836 lbs. exported during the same period last year and valued at Rs.142,971,631. The quantity exported showed a slight decrease, but there was a considerable drop in the value. The total quantity of desiccated coconut exported during the nine months was 507,953 cwt., of which the U.K. took 242,076 cwt., and the British Possessions 32,768 cwt., and the total value of exports amounted to Rs.4,944,234, the value of the quantity taken by the U.K. being Rs.2,385,059 and by British Possessions Rs.313,324. During the same period last year the total quantity exported was 546,061 cwt. (of which the U.K. took 237,762 cwt., and the British Possessions 44,104 cwt.) and the total value was Rs.8,104,354, the value of the quantity taken by the U.K. being Rs.3,577,752 and by British Possessions Rs.637,787. The quantity of raw cacao exported from January to September was

5,743,245 pounds, valued at Rs.1,508,550, against 6,070,188 pounds, valued at Rs.2,261,164 during the same period last year.

Decrease in Export and Import Duties.

The Statement of nett Customs Revenue collected at several ports in the Island from January to September shows a decrease of Rs.6,493,676 as compared with the same period in 1930. The total collections from January to September were Rs.31,444,435, compared with Rs.37,938,111 during the corresponding period last year.

Port, Harbour, Warehouse and other dues during the period under review amounted to Rs.4,224,345, against Rs.4,539,819 during the same period in 1920.

Retirement of Colombo Port Commission's Secretary.

Mr. H. K. Hillyer, O.B.E., Secretary of the Colombo Port Commission, goes on retirement shortly, taking advantage of the new pension concessions, and Mr. E. H. Davies will act as Secretary.

Mr. Hillyer, who is 50 years of age, came out as Secretariat Assistant in 1908 and was appointed Secretary of the Port Commission in 1913. He went on War service in 1918 and was awarded the O.B.E. in 1919. Before coming out to Ceylon, Mr. Hillyer served in the Colonial Office.

Colombo Port Commission.

At a meeting of the Colombo Port Commission held recently, one of the items that engaged the attention of the members was the question of the payment of night fees to the Port Surgeons.

The Commission was of opinion that the system at present in force in connection with the payment of night fees to pilots might be introduced in connection with the payment of fees to the port surgeons for the granting of pratique at night, viz., the fees to be paid by the agents in respect of any ship passing through either entrance, inward or outward, between 6 p.m. and 6 a.m., the time being taken by the signaller of the watch at the pilot station and no certificate being obtained from the master of the vessel.

The Commission also considered the question of the renewal of the lease of the site at the North side of the Graving Dock to the Eastern Telegraph Co., Ltd., for the storage of submarine cable for a further period when it expires on December

Notes from Far Eastern Ports—continued.

31st, 1931. It was decided that the lease should be renewed for a further period of one year on the same terms as at present.

A letter was also considered from Messrs. Hull, Blyth and Co. (Colombo), Ltd., enquiring whether in view of the unprecedented depression which had seriously affected the coaling business at the Port of Colombo, the rent payable during the remainder of the lease could be revised. It was decided that no reduction could be made in the rental of the coaling lots until the present leases expire.

Before the Commission rose, the Chairman referred to the fact that Mr. H. K. Hillyer was retiring before the next meeting after service as Secretary to the Commission since its inception 18 years ago. On behalf of the Commission he wished Mr. Hillyer health and prosperity in his retirement.

Increase in Freight Rates.

The Shipping Conferences in Colombo, embracing various shipping lines, have increased the freight rates of cargo shipped at Colombo by ten per cent. from November 1st.

This step has been taken chiefly to compensate the loss on exchange. The loss on the present rate of exchange is estimated to be twenty per cent. Other reasons for the all-round increase of ten per cent. in freight rates are increased charges at way ports and the increase of the Suez Canal dues by twenty per cent.

The Shipping lines belonging to the Homeward Shipping Conference and the Continental Shipping Conference in Colombo have brought into force the new freight rates from November 1st.

Freight rates to New York and Atlantic ports by American shipping companies have also been increased by 15 per cent. from November 6th. The freight rates charged by the same American shipping lines for cargo to ports on the Pacific seaboard will, however, remain unchanged as the exchange rate is based on the gold dollar basis. Freight rates to Canadian ports have also been increased by ten per cent.

A Protest.

Local shippers have prepared a memorandum protesting against the increase on the grounds that the proposed rates are marked contrasts to the lower rates charged from Indian ports and that this increase will hit the agricultural interests of the country.

The last time an all-round increase in freight rates was made was as far back as December, 1924. The increase on that occasion was five shillings.

Interviewed, the Chairman of the Continental Conference stated that the proposed increase would not fully compensate the shipping lines for the loss on exchange, which amounted to 20 per cent.

Siam**Port of Bangkok's Foreign Trade.**

Exports from the Port of Bangkok dropped below imports in September for the first time in several months, rendering the balance of trade extremely unfavourable. Imports totalled Tcs.7,833,961, while exports reached Tcs.7,031,844—a difference of Tcs.802,107. For 1,223,651 piculs of rice, Siam received Tcs.4,427,939 in September, this year. Last year 1,325,855 piculs brought Tcs.9,133,222.

Teak exports fell to Tcs.504,163, a little more than fifty per cent. of last year's exports for the same month. Other goods totalled Tcs.2,089,897, only slightly less than last year.

The biggest single drop in imports was that of wine, beer and spirits. These totalled Tcs.77,231 against Tcs.225,384 last year. For the three months ending September 30th, these totalled Tcs.548,514 against Tcs.1,525,203 for the preceding three months.

General merchandise dropped from Tcs.10,405,949 last year to Tcs.6,658,124 this year.

The export of tin brought the balance of trade nearer a favourable figure in the provinces, the total exports being Tcs.2,693,040 and the imports only Tcs.925,412. More rice was exported from the provinces than last year, and also more tin was exported.

Port of Bangkok.

It has been notified by the Government of Siam, under the provisions of the Customs Law, that the Wharves specified below have been approved for the landing and examination of the goods specified below; and packages containing any of the indicated goods may not be landed for examination except at one or other of the indicated Wharves.

Approved Wharves: Wharf No. 2 (Anglo-Siam Corporation East Asiatic Company, Ltd.); Wharf No. 12 (British India Steam Navigation Company); Wharf No. 26 (Mitsui Bussan Kaisha, Limited); and Wharf No. 28 (Borneo Company, Limited).

The goods specified are: Table 1, all goods except Samshoo; Table 2, all goods except kerosene and benzine; Table 3, all goods except Gin Seng; Table 4, all goods except explosives; Table 5, all goods except unprepared food; Table 6, all goods except fuel oil; Table 7, all goods; Table 9, all goods except baggage.

Vessels in the Port of Bangkok during the Month of October.

During the month of October the total gross tonnage of vessels that called at the Port of Bangkok was 54,296, including 18 British vessels, 19,465 tons; 25 Norwegian, 20,761 tons; 3 Japanese, 3,916 tons; 1 French, 961 tons; 5 Dutch, 6,577 tons; and three Danish, 7,024 tons.

India**Customs' Method of Charging Duty.**

The Committee of the Indian Merchants' Chamber in the course of a telegram from Bombay to the Secretary, Revenue Department, Government of India, has drawn attention to the difficulties and hardships experienced by merchants as the result of the Customs Department charging duty, not on the invoice value of goods imported, but after converting rupees or pounds into foreign currencies and then reconvert them into rupees.

The Committee also suggested that all invoices made out before September 21st, in foreign currencies should be converted into rupees at the then prevailing rates.

Bombay Port Trust.

At a meeting of the Trustees of the Port of Bombay held on 21st October, 1931, the following were the main items of business disposed of:—

The election of Mr. Purshotam Jivandas by the Indian Merchants' Chamber as a Trustee vice Sir Purshotamdas Thakurdas, Kt., C.I.E., M.B.E., during the absence of the latter on deputation to the Indian Round Table Conference in London was recorded.

Sanction was accorded under the provisions of the Indian Ports Act to the following annual grants from the Port Fund:—

A donation of Rs.500 to the Pechey Phipson Sanitarium at Nasik for the year 1931.

A contribution of Rs.5,042 to the Goculdas Tejpal Hospital Nursing Association in respect of the year 1931-32; the sum representing a moiety of the cost of seamen in-patients of the hospital during the preceding 12 months.

The Board considered applications for the post of Assistant Mechanical Superintendent (Electrical) and on the recommendation of the Finance and General Committee appointed Mr. D. V. Kohli to the post.

Renewals for 10 years in each case were granted of leaseholds, Rent Roll No. 164 and 167, at Clive Road and Broach Street, on the Elphinstone Estate, at revised rates. A number of renewals on the same Estate were also granted on yearly tenancies on terms agreed to by the lessees.

* * * *

At a meeting of the Trustees of the Port of Bombay held on 3rd November, 1931, the following were the main items disposed of:—

An amendment of the Docks By-laws was approved to provide for the discharge and shipment over the Docks wharves of inflammable paints, varnishes and compounds containing petroleum in quantities not exceeding 500 gallons per ship; consignments in excess of this quantity will continue to be discharged overside into lighters as hitherto.

In accordance with legal advice and after consulting the Chamber of Commerce and other Indian Port Administrations, it was decided to notify traders and merchants that, under the provisions of the Indian Stamp Act, delivery orders in respect of deliveries of cargo ex Dock transit sheds or the Duty Paid Warehouses must bear a 1 anna stamp in all cases where sale or transfer of the property has taken place. This practice will be enforced with effect from 1st January, 1932, and the Docks Manager will notify the various Trades Associations regarding the details of the procedure.

A number of renewals of ground leases on the Elphinstone Estate were granted on yearly tenancy on terms agreed to by the lessees.

Scottish Harbour Notes

Meeting of Directors of Glasgow Chamber of Commerce.

AT a recently-held meeting of the Directors of the Glasgow Chamber of Commerce it was stated that several complaints had been received from members to the effect that shipping companies now quoted freight rates to and from Continental ports in foreign currencies, and it had been suggested that the Chamber should make representation to the Board of Trade on the subject. It was reported that the Secretary had been in communication with the Association of British Chambers of Commerce who, in turn, were in touch with the shipping companies on the subject. After discussion the matter was remitted to the Home Affairs Committee for their consideration. At the same meeting letters were submitted from members stating that they were charged 47s. 6d. per ton for freight from Glasgow to Cardiff if the goods were sent from their warehouse in this city, but, if they delivered consignments exactly the same in every respect from their works in the North, a freight of 30s. 10d. was charged instead of 47s. 6d. They urged, therefore, that the rates operated to the advantage of firms in the North, and to the serious disadvantage of firms in the Glasgow district. This matter was also remitted to the Home Affairs Committee for consideration.

Leith Chamber of Commerce discusses Coal Shipment Charges at the Port.

Trade conditions and prospects were discussed at a recent meeting of Leith Chamber of Commerce when some interesting matters were under review. One speaker complained that at Leith the present dock rates charged on steamers loading export coal were tenpence per ton (that being four hundred per cent. above the pre-war charge) whereas Poland's charge was one penny per ton. He urged that this should not be allowed to continue, as this meant all the difference between business coming to this country or going to Poland. The speaker added that the Baltic and Maritime International Conference were sending representatives over here to investigate port charges, and to find out (among other things) why Leith was the dearest port for the shipment of coal. It was explained in reply that this matter of the charges of coal had had the serious consideration of the Commissioners, and was really a matter of the cost of labour more than anything else in this country as compared with other countries. It was further added that the question of cost of labour in Leith was being closely enquired into.

Reply by the Leith Dock Commissioners.

This criticism regarding coal shipping charges was the subject of a spirited reply at a subsequent meeting of Leith Dock Commissioners. Mr. Bell (dealing with this matter at the Dock Commissioners' meeting) urged that, while it had been stated that Leith was a most expensive port for shipment of coal, the very contrary was the case. With the exception of the Humber ports, Leith was one of the cheapest in the United Kingdom and the tonnage charges were the same as at Methil and Burntisland except that at Leith regular traders got an important concession after eight voyages. There was absolutely no comparison between Leith rates and the large charges at South Wales ports. The pre-war rate (to which reference had been made) was originally fixed years ago when Leith had no coal trade whatever of its own, and when any shipment had to come from the west with a prohibitive railway rate compared with shipping at Glasgow and other ports. They had recently made considerable reductions in the rates at the same time incurring heavy expenditure in improving and extending the facilities for shipment.

Improvement in Trade at the Port of Dundee.

Improvement in the trade of the port was announced at the recently-held annual meeting of the Dundee Harbour Trustees. Mr. B. L. Baird (reviewing the activities of the past year) mentioned that they were now in the midst of a Provisional Order, and in a few weeks the special committee dealing with the Order hoped to be able to put their findings before the Board. During the past year and part of the current year they had been going through difficult times as regards finance and revenue had been dropping, but he was glad to say that the trade of the port was now increasing. He hoped that the tide had turned, and that within the next month or two they would see a distinct improvement in the revenue. It was satisfactory to note that the sugar traffic was coming back into the port. The following week a boat would come to Dundee with probably about seven thousand tons, and Mr. Baird hoped that, by the fresh arrangements made by the Trust, they would not have the vessels going to other ports.

Members of the Dundee Chamber of Commerce have been urged to give all the support they can to the Dundee Harbour which Mr. P. S. Nicoll (the Chamber's representative on the Harbour Trustees) said was facing fierce competition. All the harbours on the east coast were competing for trade, and the Dundee Harbour was still labouring under a heavy burden of debt. Mr. Nicoll was reporting to a meeting of the Chamber on the year's work at the Harbour, and he pointed out that the tonnage last year was 104,970 tons down.

New Grain Warehouse at the Imperial Dock, Leith.

An order for the manufacture and erection of machinery for the new grain warehouse at the Imperial Dock, Leith, has been secured by Henry Simon, Limited, Cheadle Heath, Stockport. At present Messrs. Melville, Dundas and Whitson (Glasgow) are engaged on the construction of the piled foundations for the building, but the contract for the building itself has not yet been placed by the Dock Commission.

Re-election of Chairman of Leith Dock Commissioners.

On his re-election as Chairman of Leith Dock Commissioners for the ensuing year, Mr. Thomas Cowan—reviewing the activities of the past year—stated that he had been most fortunate in having, as colleagues, an experienced and able body of Commissioners, whose great desire was to do everything possible to foster and develop the usefulness of the undertaking, and he thought it could be said with some assurance that the Leith Docks had a wide reputation for efficiency and reasonableness in rates. They had, in progress, a large improvement in connection with the coal traffic (part of which was now approaching completion) and by the end of next year he hoped that their new grain elevator, if not working, would at least be visible from a great distance. During recent years the Commissioners had spent large sums in improving the usefulness of the undertaking. All this expenditure had been of a character quickly remunerative rather than of the nature of dead-weight capital. The policy followed had enabled the Commissioners from time to time to give various reductions in rates which had attracted traffic to the port, and had had the effect of keeping the undertaking in a very satisfactory financial condition.

Port of London Notes

London's Shipping.

During the week ended November 6th, 1264 vessels, representing 1,009,943 net register tons, used the Port of London. 582 vessels (807,611 net register tons) were to and from Colonial and Foreign Ports, and 682 vessels (202,332 net register tons) were engaged in coastwise traffic.

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During the week ended November 13th, 985 vessels, representing 914,705 net register tons, used the Port of London. 522 vessels (739,274 net register tons) were to and from Colonial and Foreign Ports, and 463 vessels (175,431 net register tons) were engaged in coastwise traffic.

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During the week ended November 20th, 996 vessels, representing 1,012,453 net register tons, used the Port of London. 607 vessels (832,626 net register tons) were to and from Colonial and Foreign Ports, and 389 vessels (179,827 net register tons) were engaged in coastwise traffic.

Tilbury Passenger Landing Stage.

Twenty-four vessels totalling 207,379 gross register tons, used the Tilbury Passenger Landing Stage during the month of October.

Altogether 3,000 passengers were embarked or disembarked at the Stage, in addition to baggage and mails.

Quick Despatch at Newport Docks.

Excellent despatch was given in the loading of the s.s. "Gallois," which commenced loading at 9.15 p.m. on the 24th November and completed at 3.20 p.m. on the 25th, during which time the following quantities of coal were shipped:—

Cargo	...	...	Tons	Cwts.
Bunkers	...	...	3,609	8
			122	7
Total	...		3,730	15

A single coal hoist was employed, and the actual working time was 12 hours 25 minutes; the steamer was, therefore, loaded at an average rate of 300 tons an hour.

The Port of Sydney, New South Wales

The Wheat-loading Terminal at Glebe Island

THE export of wheat from the Port of Sydney for some years past has been of increasing importance, and in this direction the Sydney Harbour Trust Commissioners have, by a foresighted policy of continual developmental work embodying modern methods of transport, storage and shipping practice, established in conjunction with the Department of Agriculture a wheat-loading terminal of considerable magnitude at "Glebe Island." Extensive constructional work has been carried out, and the comprehensive scheme of development which is being given effect to makes provision for meeting the increased demands for wheat-handling facilities which are expected in the future.

The actual zone of the wheat terminal is triangular in shape and has an area of approximately 41 acres. Its geographical position from a rail and shipping point of view is one of its significant features. It is well served by the Government Railways from all parts of the State, and extensive siding accommodation is provided for the marshalling of both full and empty trucks. The depth of water at the wharves is 35-ft., and the largest vessels entering Sydney Harbour can approach any of the berths with absolute freedom at any state of the tide.

The distance of Australia from the markets of the world renders it most essential that the costs of transporting her products be kept down to a minimum, and that consideration is a paramount one in the case of wheat. It was primarily for this reason that the bulk-handling system was inaugurated in New South Wales in 1920, and it was for the same reason that steps were subsequently taken to provide modern and conveniently situated facilities for the handling of bagged wheat. This had previously been shipped at Pyrmont, and the adoption of the bulk-handling system meant that vessels, after taking in a bulk cargo, had to be towed to another section of the port to "top off" with bagged wheat. This uneconomical proceeding, combined with the constant need for modernising the methods of handling the increasing wheat yields of the State, led to the Sydney Harbour Trust Commissioners embarking upon an extensive scheme for the provision of rail, storage and shipping facilities for bagged wheat at Glebe Island.

The major portion of this article will be devoted to a description of these facilities, but it might be noted here that the concentration at Glebe Island of all the wheat-handling facilities of this port is not yet complete. Bagged wheat is still shipped from Darling Island, Pyrmont, and it is expected that these facilities will continue to be used for some time to come.

New South Wales has for many years been a most important wheat producing State, and of the total of Australian yields in the last ten years has been responsible for a proportion varying from 24 per cent. to 38 per cent. The greatest harvest in the history of the State was in the 1915-1916 season, when 66,000,000 bushels were garnered; the next highest was in 1924-25, when the yield was 60,000,000 bushels. Of the total State harvest from 17,000,000 to 20,000,000 bushels has latterly been required for local consumption, some 10,000,000 for seed and disposal in other States, and the balance has been available for export.

In the 1924-25 season 871,000 tons were exported from Sydney, of which 40 per cent. left in bulk and the balance in bags. The percentage shipped in bulk has, of course, varied with the season, and in no season to date has it been as great as the proportion shipped in bags. It is anticipated that, with the extension of the bulk wheat system throughout the country, the proportion of bulk shipments will increase, but that the total yield will also be so much greater that the proportion handled in bags will not diminish, and that the bagged handling facilities now existent and yet to be provided will be required.

Bulk Handling at Glebe Island.

The terminal at Glebe Island has a storage capacity for bulk wheat of 6,750,000 bushels, or approximately 182,000 tons. The wheat is fed into ships by a system of belt conveyors from the storage bins to spouts mounted on travelling gantries, and the total shipping capacity of the plant is 1,400 tons per hour. It is one of the speediest wheat-handling plants in the world, and certain shipowners do not appear to be aware of its improved capabilities, as they continue to stipulate in their charter-parties for the loading of bulk wheat in Sydney at the rate of only 1,000 tons per day.

The terminal elevator and the operations of loading bulk wheat are entirely controlled by the Department of Agriculture.

Rail Facilities.

At the Pyrmont wheat berths a fruitful source of delay was the congestion caused by the difficulty of removing empty trucks

from the wharves, which were in themselves virtually railway sidings. The scheme at Glebe Island has been so designed as to keep the trucks well away from the wharf and to allow nothing to hinder the free movement of the trucks; when empty they are moved to another line by means of electric capstans, and thus do not impede incoming full wagons.

Facilities for Handling Bagged Wheat.

In the remainder of this article the new facilities provided for the handling of bagged wheat at Glebe Island are described. On reference to the Supplement which shows the general lay-out it will be seen that there are at present five storage sheds, one opposite each of berths Nos. 1, 2, 4, 5 and 9. The sheds first erected were Nos. 4 and 5, and it will be noticed that these were set back from the edge of the wharf a distance of 48-ft., whereas the width of wharf in front of Nos. 2 and 3 is only 24-ft. The explanation of this difference of construction lies in the fact that when the first bulk wheat loading-out plant was installed it was the intention of the Commissioners to provide facilities which would enable the plant to be extended the full length of the wharf. Hence it was necessary to allow sufficient room in front of the bagged wheat sheds (Nos. 4 and 5) for the loading-out towers to pass. The Commissioners wished also to make use of these berths, as occasion arose, for the handling of general cargo, and since it was therefore not possible to install travelling bagged wheat loaders as at sheds Nos. 2 and 3, a solution was found by the introduction of portable elevators, which, when not in use, might be readily withdrawn, leaving the deck clear. In the case of sheds Nos. 2 and 3 the bagged wheat loaders travel upon a single rail track situated well back from the edge of the wharf (see Fig. 3), and the design of these machines is such that they can be employed at any position along the wharf without causing obstruction either to the handling of general cargo or to the passing of vehicular traffic. Should the necessity arise for the extension in front of sheds Nos. 4 and 5 of the bulk loading galleries, there will not be any difficulty in doing so; in addition to the shed construction permitting of such an extension the substructure of the wharf was specially designed to meet such a contingency.

The following are particulars of the dimensions and storage capacities of the five sheds at Glebe Island in which bagged wheat may be stored:—

Shed	Length	Size	Storage Capacity
+2	520 ft.	x 120 ft.	960,000 Tons 25,600
+3	400 ft.	x 100 ft. (aver.)	630,000 16,800
4	384 ft.	x 112 ft.	6,500 17,400
5	360 ft.	x 112 ft.	695,000 18,600
9	384 ft.	x 41 ft.	210,000 5,600
			3,150,000 81,000
†1	390 ft.	x 100 ft.	660,000 16,000
			3,720,000 100,000

+No. 2 Shed already built, but not fully equipped; No. 3 Shed not yet built.

†Emergency Wheat Berth.

All these sheds have been designed primarily for the handling of bagged wheat, and are steel-framed throughout. Being weatherproof, they ensure stored wheat being kept thoroughly dry whilst awaiting shipment.

Within sheds Nos. 2, 4 and 5 a comprehensive system of overhead conveyors is installed, the keynote of which is "flexibility" in transporting bags to any desired point, either in shed or on vessel. In addition, portable elevators and conveyors are used for specific purposes as well as for an emergency unit should a temporary stoppage occur affecting the main overhead system.

The various units comprising the mechanical handling equipment have been carefully designed and selected for their respective duties, and when combined in groups the plant is capable of functioning in the following manner:—

1. Truck to ship by fixed conveyors and portable elevator.
2. Truck to ship by portable conveyors and portable elevator.
3. Truck to shed stack by fixed conveyors or portable conveyors.
4. Shed stack to ship by portable conveyors and portable elevator.
5. From stack transferred along shed and delivered to any desired point within shed or on ship.

The Port of Sydney, New South Wales—continued

In sheds Nos. 4 and 5 there are 14 portable elevators, 2,789-ft. of fixed conveyors, and 1,610-ft. of horizontal portable conveyors comprising 57 units of 20, 25 and 30-ft. lengths and capable of operating in trains when attached to each other. This equipment is designed to deal with 900 to 1,000 bags per hour per feeder, which is equivalent to approximately 75 tons of wheat. After making due allowance for time lost in changing trucks, adjusting shoots, relief periods, etc., etc., the real capacity based upon a day's run of 8 hours works out at an average of 50-60 tons per hour per hatch, which is considered very satisfactory for this class of cargo, particularly when man-handling has to be resorted to in the vessel's hold for carrying and stacking. From these figures it follows that a vessel loading four hatches at the same time can ship approximately 1,800 tons or 22,500 bags of wheat per day.

The complete conveyor equipment is electrically operated and automatically controlled from a central switch room. Efficient signalling devices directly connected with the control room are provided and installed along the lines of conveyors, by which means any particular group of conveyors working as a single unit can be immediately stopped. The operation of starting up the conveyors can be done only by the man in charge of the control room, who, after receiving the "all clear" signal, starts the conveyors up in correct sequence, which prevents bagged wheat over-riding or flooding at transfer points.

The arrangements for taking delivery of bagged wheat from railway wagons is interesting. Seven truck unloading platforms serve the main conveyor system of sheds Nos. 4 and 5. They are arranged in echelon formation amongst a network of sidings, upon which the full and empty trucks are handled by means of electric capstans. All the approach rail tracks to the platforms are graded, and as each truck is emptied it is dispatched and switched over to the siding for "empties." The position of the feed shoot is such that the bags of wheat are fed on to the conveyor directly from the floor of the truck; this is an important factor, as thereby are reduced to a minimum the time and labour of unloading.

The method of loading bagged wheat over ship's side into hold is of primary importance, as it is essential, whatever apparatus is used, that the bags shall be handled in such a manner that there is no possibility of a bag dropping, bursting or being ripped open whilst in transit. Fig. 4 shows the method adopted at Glebe Island of loading into ships at sheds Nos. 4 and 5, and which has proved very successful. The bags are delivered at the ship's side on to the tail or lower end of a portable elevator of the open slat type. The jib or upper portion is hinged in order that it may be raised by means of a telescopic mast to any desired angle of inclination up to a maximum of 45 degrees.

The feed shoots between the fixed conveyor system and the portable elevators (used for lifting the bags over the ship's side) are telescopic and adjustable. They consist of two steel pipes extending from the overhead conveyors inside the shed to the lower or tail end of the elevator, and are capable of being adjusted to any length and angle, within reasonable limits, to suit various conditions of loading. At the discharge end of each elevator at the top of the ship's side a similar shoot is provided, the bottom end of which rests upon a deck table on board. At this point the bags momentarily come to rest and are controlled by a man stationed there whose duty is to regulate the downward flow on the pipe shoots rigged in zigzag formation in the hatch. The shoots are made up in units or sections and constructed so that they can be readily fixed in position in any size of hatch. At the bottom of these shoots the bags come to rest on an up-ending board where 10 men usually are employed, two for dividing the flow on board and eight for carrying and stacking. In some cases, where remote parts have to be reached, recourse is had to two additional shoot boards from this point, two more men being added to the gang working in the hold.

Ships loading bulk wheat from the silos "top off" with bagged wheat as a means of consolidating the cargo in the hold. At the bulk wheat berths (Nos. 6, 7 and 8) railway lines have been brought along at the rear of the bulk wheat conveyor gallery, from which it is possible by means of portable conveyors to load as another hold is being loaded with bulk wheat. By means of this facility the time taken to complete the shipment of an average size cargo ship is reduced by approximately two days, which is of course a matter of vital importance to ship-owners. Where it is not possible to complete the "topping off" operations at the bulk berths the vessel can be warped to either No. 5 or No. 9 berth for that purpose.

Latest Bagged Wheat Facilities.

On the eastern side of the island the Commissioners have embarked upon extensive new works affording additional storage, berthing and loading facilities. These comprise two large storage sheds, Nos. 2 and 3, with a total capacity of 1,500,000 bushels, or 42,400 tons, and 1,300-ft. of wharf; in addition No. 1 berth, with 420-ft. frontage and a shed with a capacity of 600,000 bushels, or 16,000 tons, could be used as an emergency wheat berth if so desired.

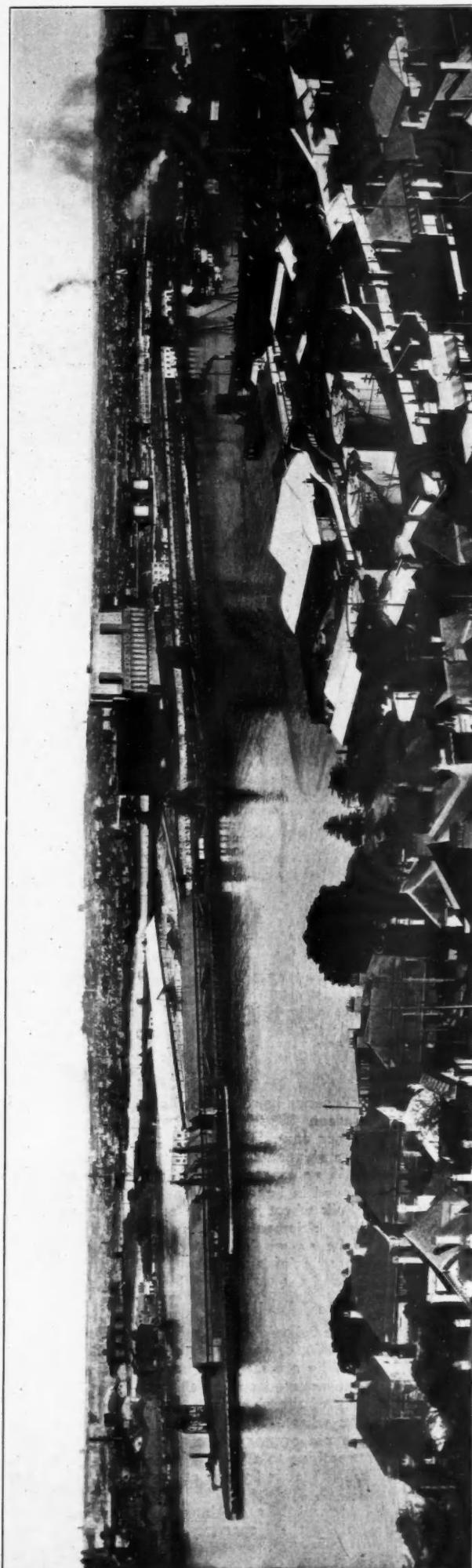


Fig. 1. Panoramic View of Glebe Island Wheat Loading Terminal for Bulk and Bagged Wheat.

The Port of Sydney, New South Wales

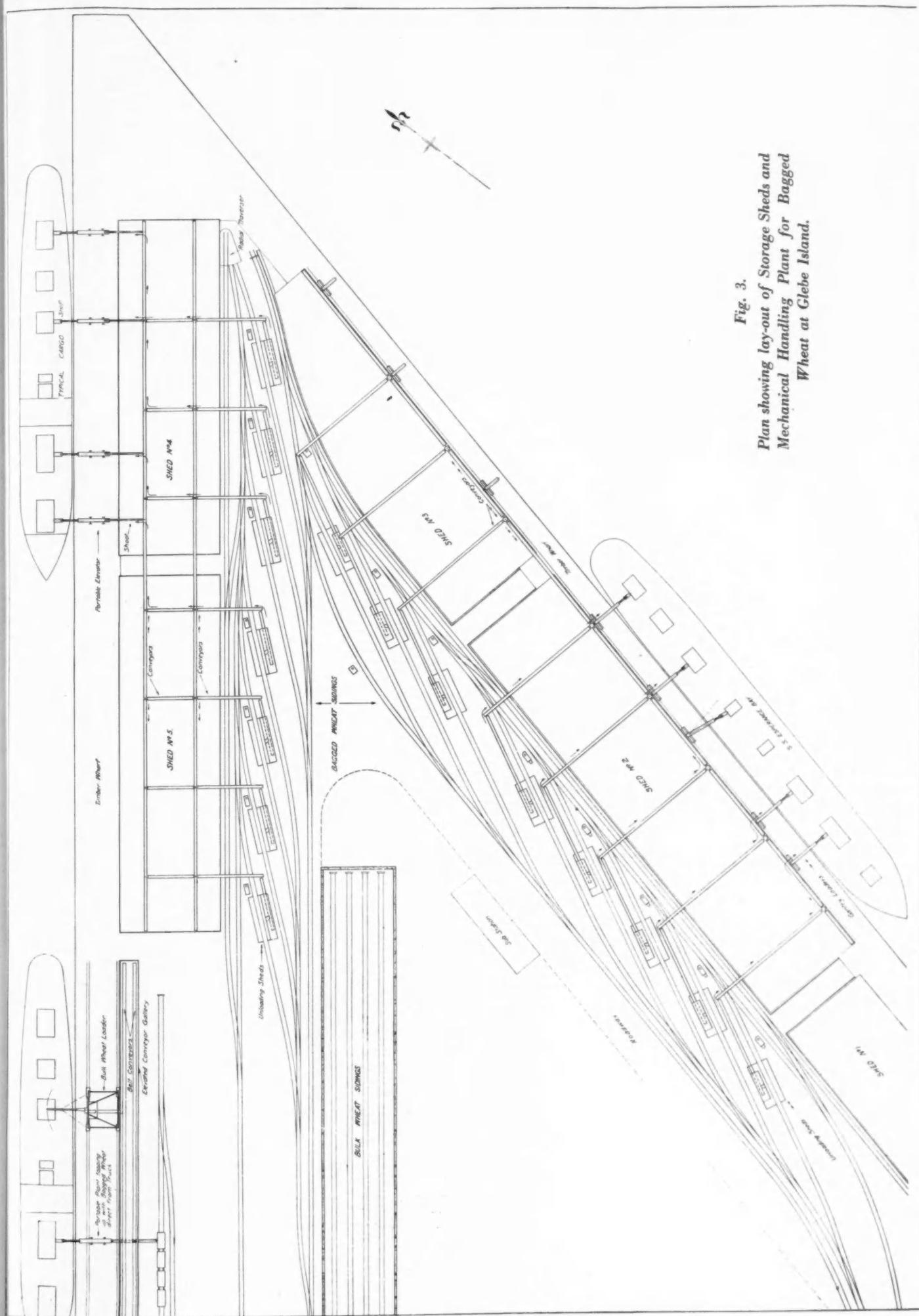


Fig. 3.
Plan showing lay-out of Storage Sheds and
Mechanical Handling Plant for Bagged
Wheat at Glebe Island.

The Port of Sydney, New South Wales—continued

In the design of these works many new features have been introduced as a result of the experience gained in the experimental work carried out by the Commissioners' engineers. When completed they will represent a step forward in the application of modern methods of transport and of up-to-date mechanical handling appliances. The facilities for unloading the full trucks are similar to those adopted on the western side, but an improved arrangement of the conveyor systems inside the sheds has been effected. From a study of the plan, Fig. 4, it will be observed that all the conveyors are at one level, and that at each transfer point a rotary turn-table is provided, fitted with a directional plough-off device. The introduction of this apparatus obviates the necessity for awkward transfer shoots; it ensures a maximum amount of headroom for storage purpose and at the same time reduces to a minimum the overall height of the shed, while construction generally is simplified.

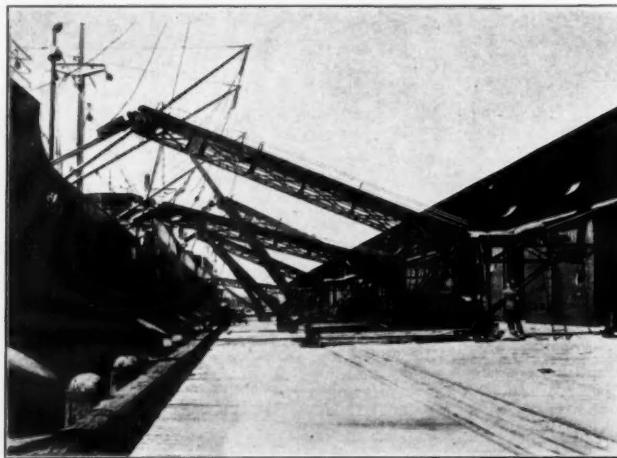


Fig. 5. Portable Elevators shipping Bagged Wheat, Glebe Island.

On the wharf fronting sheds Nos. 2 and 3 there are eight electrically operated travelling gantry loaders each fitted with a jib conveyor which can be adjusted for varying the height of delivery and for moving horizontally $12\frac{1}{2}$ degrees on either side of the centre line; this arrangement permits of easy plumbing of the hatch, and if desired it is possible for two loaders when working side by side to deliver into one hatch (Fig. 3).

The method of loading into the vessel's hold is similar to that at present in operation on the west side, i.e., by pipe shoots arranged in zig-zag formation.

Portable conveyors and elevators are provided for specific purposes, also as an emergency plant in the event of a stoppage of any part of the main overhead system.

The transport system, as a whole, comprises eight gantry loaders, 2,916-ft. of fixed conveyors, 500-ft. horizontal portable conveyors containing 20 units of 20, 25 and 30-ft. lengths, and 4 portable elevators.

As in the case of sheds Nos. 4 and 5, the fixed portion of the handling equipment is automatically operated from a central control room and is also provided with the latest signalling devices, which ensure the starting of the various groups of conveyors in correct sequence.

The portable elevators and conveyors when joined in trains have an independent and local control which is connected up to a system of power plugs fed from a central switchboard. Each unit is controlled by a portable starter of the push button type and is fitted with safety gear which, in the event of overloads, automatically stops the whole train.

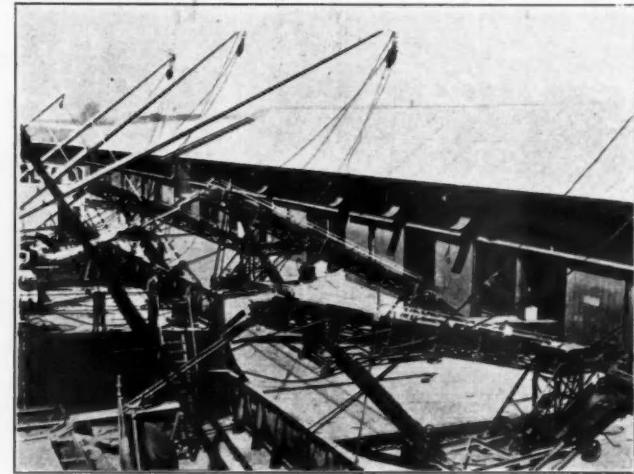


Fig. 5. Portable Elevators shipping Bagged Wheat, Glebe Island.

On the completion of these extensions on the east side of Glebe Island the maximum storage and outloading capacities of the terminal will be as follows:—

Storage Capacity	Bulk Wheat	Bushels	Tons
	Bagged Wheat	3,400,000	91,000
Outloading Capacity per hour	Bulk Wheat	52,000	1,400
	Bagged Wheat	62,500	1,680

These figures show in some measure the magnitude of the work carried out by the Commissioners of the Sydney Harbour Trust in conjunction with the Department of Agriculture and the Railway Commissioners in providing facilities for the export of wheat from the State of New South Wales.

Notes from the North

£275,000 Sea Wall.

SIR KEITH NUTTALL, of Messrs. Nuttall and Co., the public works contractors, recently conducted a party of Wallasey councillors over the first part of the £750,000 scheme for extending along the foreshore. The sea wall, which is now being constructed and is to cost £275,000, connects with the Perch Rock Battery and then runs at right angles to the Red Noses, where pile-driving is now proceeding. Costing about £100,000, the Marine Lake will be between the existing promenade and the defence wall. Next comes the open-air swimming baths (to cost £66,000), facing the Marine Park. Ultimately the new promenade will link up with the Leasowe Promenade, thus making complete a river and sea front promenade from Seacombe to West Kirby.

Development of Dee Area.

Chester and North Wales Chamber of Commerce is showing a keen desire to undertake the development of the River Dee by encouraging industrial developments on the banks of the river. It has been decided to get into touch with the Town Councils of Chester and Wrexham, with a view to ascertaining what they are prepared to do in the direction of further schemes for bringing sites to the notice of people or firms requiring them.

Ribble Docks Busy.

November opened with busy scenes at Preston Docks, three foreign tankers arriving with approximately 3,000,000 gallons of motor spirit. There was also great activity on the timber side, three steamers each bringing 1,000 standards from Russia. The Swedish steamer *Thyra* discharged 700 standards, and also had

on board about 1,000 tons of wood pulp for mills in East Lancashire. In addition, there were steamers with cargoes of cement, china clay, stone, etc., thus providing employment for hundreds of Preston Dock workers.

Otterspool River Wall Accident.

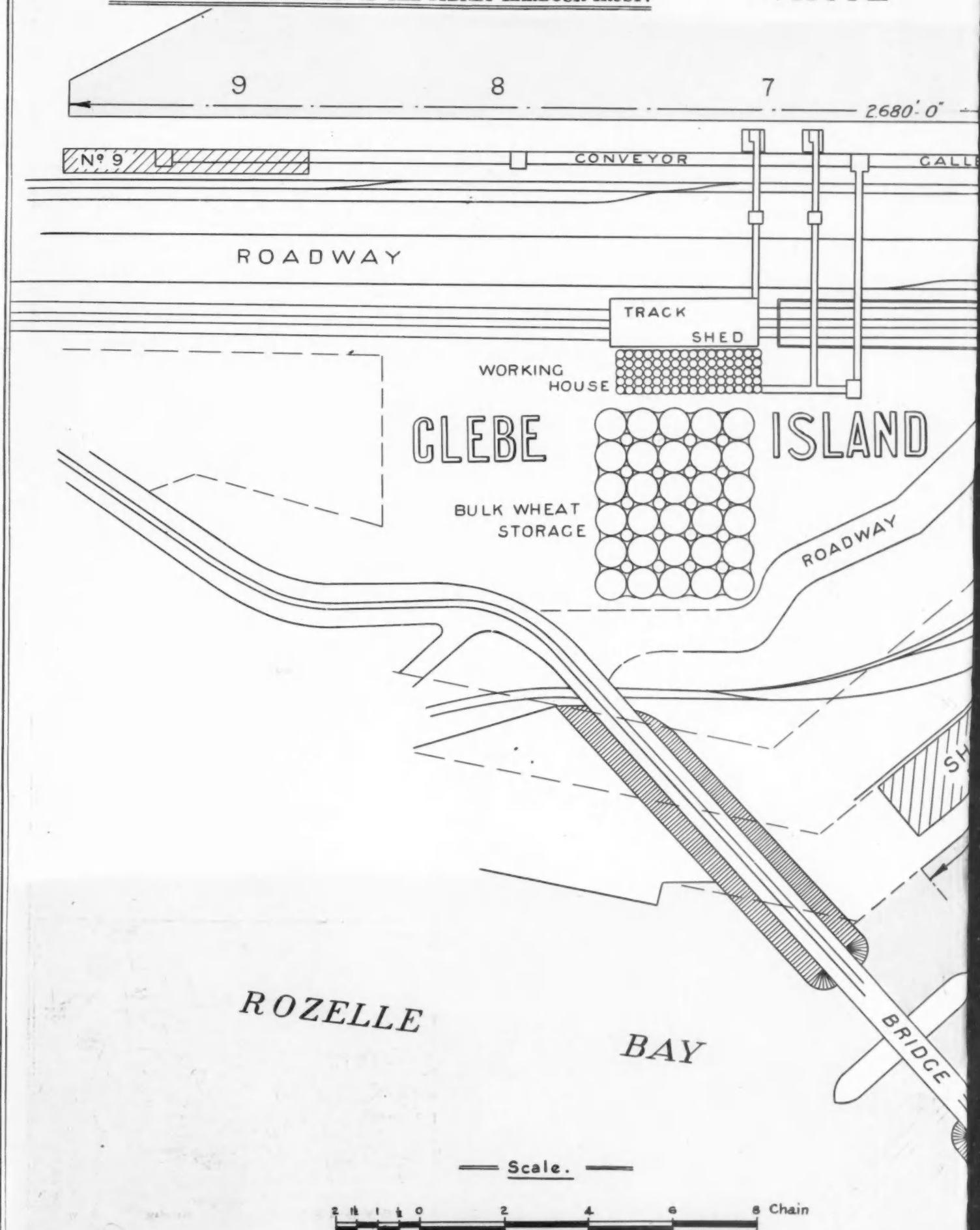
Whilst a light locomotive of about 10 tons was working on the construction of the Otterspool river wall, a contract which is held by Sir Robert McAlpine and Sons, Liverpool, it failed to stop at the end of the track and toppled into the river, resulting in the death of the driver. This led to a claim for compensation at the Liverpool Assizes (Civil Court). One of the duties of this engine was to haul cement from a concrete mixer to a yard 100 yards away. There was a slight gradient in the track, up which the engineman drove under steam, afterwards shutting off steam and applying the brakes. The far end of the track went out over the river on piles, and at the end a piece of timber was placed across it. The engine crashed into this and then into the river. When the engine was hauled out the steam regulator was found in the closed position and the brakes were full on. It was assumed that the brakes had not worked, and that the driver put the engine into reverse, but was too late to apply steam. The engine was not going at more than three miles per hour. Counsel for plaintiff submitted that the employers' duty was to provide a buffer which would prevent an engine from going over. The sleeper was perfectly useless. On behalf of McAlpines, who, it was stated, were the greatest contractors in the world, it was claimed that the track, when originally laid, was all right, but that some person in charge of the engine or track had neglected his duty. The engine had been making the

GLEBE ISLAND.

(SYDNEY HARBOUR, NEW SOUTH WALES)

UNDER THE JURISDICTION OF THE SYDNEY HARBOUR TRUST.

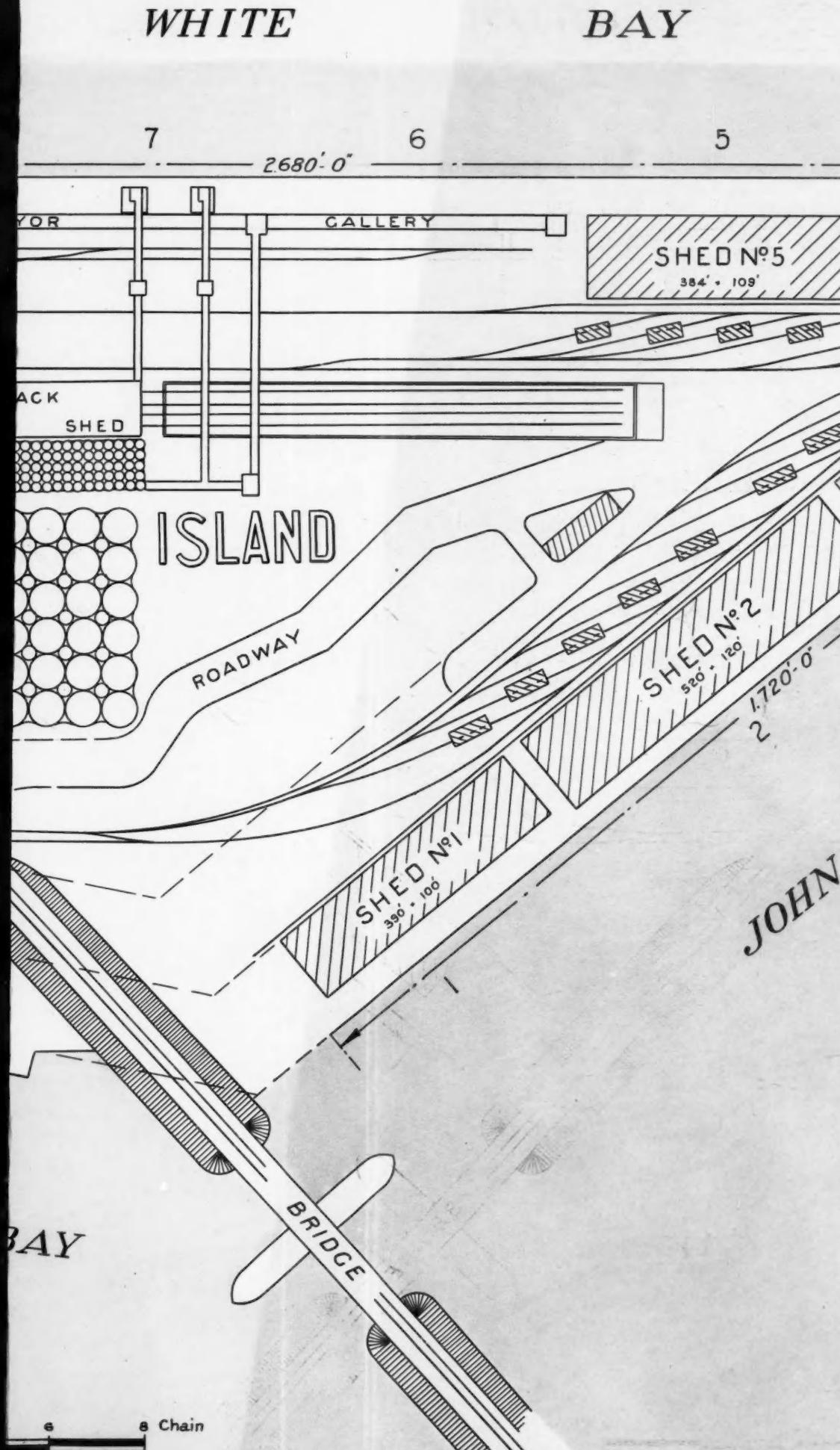
WHITE



— Scale. —

0 1 2 3 4 5 6 7 8 Chain

TO THE DOCK AND HARBOUR AUTHORITY, DECEMBER



EMBER, 1931.

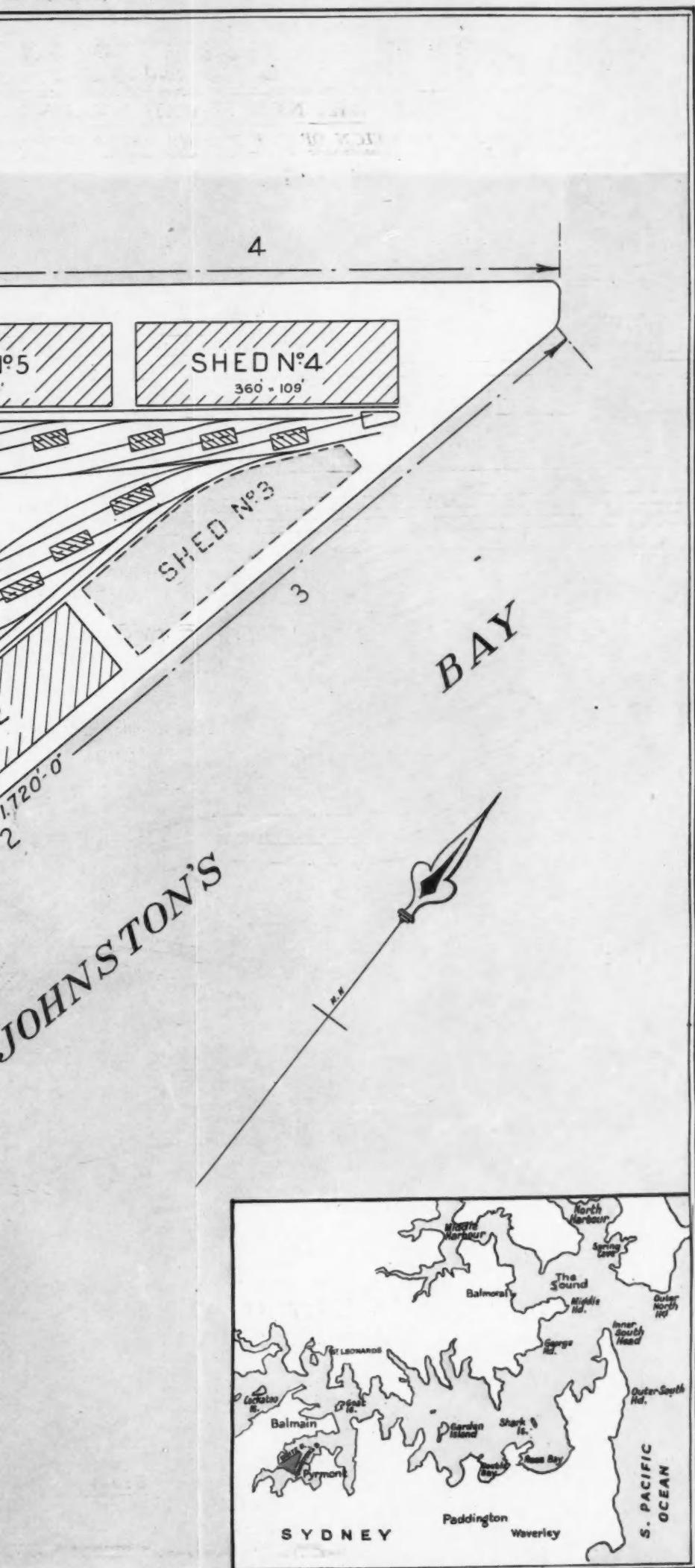


FIG. B.

А. АБСОРБЕНТЫ ДЛЯ ИНДУСТИРИ

ИСЛАДИ

ИСЛАДИ ИМЕЕТ ВСЕХ РАСПРОДАЧИ
ВСЕХ МАРКЕТОВ СОВРЕМЕННОСТИ

ИСЛАДИ

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The Port of Sydney, New South Wales

DECEMBER, 1931

The Dock and Harbour Authority

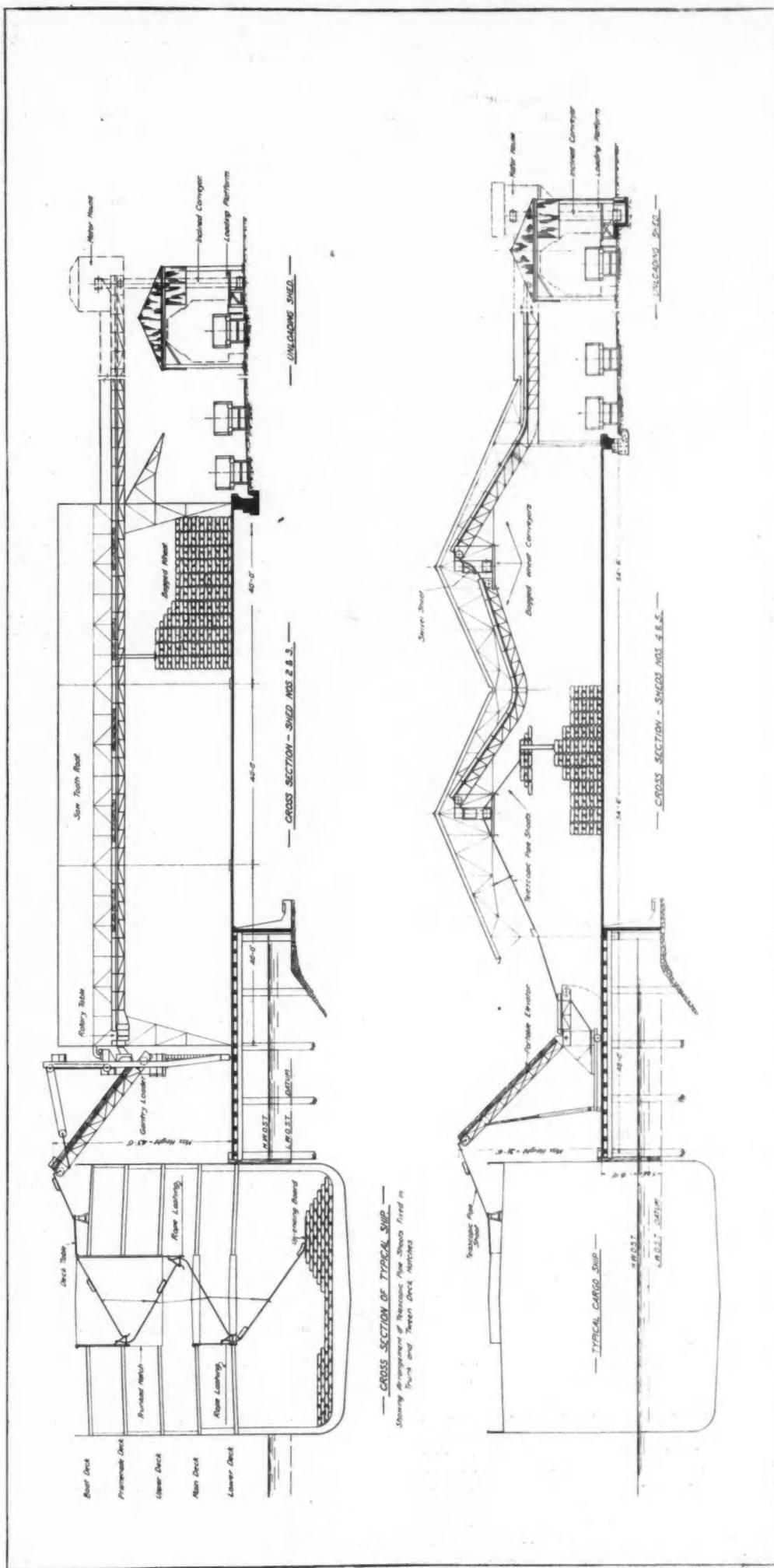


Fig. 4. Sectional Elevations through Wheat Sheds, Glebe Island.

Notes from the North—continued

journey about 30 times a day without the slightest accident. Was it really the track or engine which had failed, or the human agency? Counsel suggested that it was the last. The engine was travelling too fast. The jury found in favour of McAlpines, who obtained judgment with costs. It was stated, however, that the widow would receive £600 under the Workmen's Compensation Act.

Mersey Groynes Works.

Arrangements are being made by the Liverpool City Engineer's Department for the back filling of the river wall and the construction of groynes in connection with the Otterspool Improvement Scheme. The tender of Messrs. Nott, Brodie and Co., Ltd., Bristol, has been accepted for the work—£35,582 10s.

Seeking Trade for Manchester.

Mr. Herbert M. Gibson, chief superintendent of the Manchester Ship Canal, has recently returned from a business tour of the United States, where he found manufacturers prepared to consider having to make arrangements for manufacturing their products in Great Britain. This feeling, he said, was general, and exporters were rushing shipments of manufactured goods to England in anticipation of import duties. One of the objects of his visit was to get an adequate share of these increased shipments direct to Manchester on the Ship Canal.

Development of Fleetwood Foreshore.

The Borough Engineer of Fleetwood is preparing a draft scheme for the completion of the development of the whole of the Fleetwood foreshore, together with proposals for the utilisation of the undeveloped plot at the westerly end of the open-air bath and the covering of a portion of the band area.

There has been laid the last section of concrete on the new lower promenade at Fleetwood. The Council has thus completed its portion of the contemplated 20-mile long promenade and coast road which will eventually stretch along the Fylde coast from Fleetwood in the north to Lytham St. Anne's in the south. The main Fleetwood promenade is a mile and a half long, while the new lower promenade is three miles long. The only break in the 20 miles Fylde promenade and coast road will be at Rossall.

Mersey Tunnel Contract Nearly Finished.

The engineers to the Mersey Tunnel Joint Committee reported to the meeting on November 18th that the tunnel work, under three contracts—(1) iron-lined tunnel between the shafts of St. George's Dock, Liverpool, and the Morpeth Branch Dock, Birkenhead; (2) the full-size tunnels on the Birkenhead side, and (3) the full-size tunnels on the Liverpool side—has now been completed at a total expenditure of £2,821,000. Other expenditure brings the total up to £3,097,000. The concrete roadway on the Birkenhead side is now finished, and on the Liverpool side it is complete to the extent of 99 per cent. The number of men employed throughout the tunnel is 680. Up to date £154,000 has been expended in constructing ventilation works, this being additional to the amount already mentioned. The Committee has defeated a motion submitted by the Birkenhead representatives to appoint a sub-committee of four to negotiate with the Birkenhead Corporation with a view to the retention by the Corporation of full control of the passenger ferry services, as distinct from the luggage service, which, it is agreed, should be taken over by the Tunnel Committee. The feeling of the Committee was that the proposal cannot be entertained at present, at any rate, though it may be possible to reconsider the matter when the tunnel is open for traffic.

It was decided to accept the decision of the Ministry of Transport against any expenditure on lining of the tunnel sides with either tiles or glass. The Ministry, as a large contributor to the cost of the tunnel, has the right to disallow substantial extras of this kind. The Ministry, it is stated, takes the view that as the tunnel is not to be used by pedestrians, any kind of expensive lining is unnecessary, and that gun cement will make a satisfactory finish by itself. It was proposed to line the tunnel on each side to a height of 8 or 10-ft. above the level of the roadway with dark green or black glass panels. Two or three months ago 100-ft. length of the glass lining was placed in position in order to judge the effect. The dome of the tunnel is of concrete, which is finished with a straight coating in colour. Opaque glass was chosen for its decorative quality. It has a highly polished surface, and the slabs of glass, which were placed horizontally alongside the footpath, are 10-ft. by 2-ft. wide, and each slab is held in position by a stainless steel frame with ornamental border on the top. The test which the tunnel decorations had to stand was that they should be of such a character which would not be affected or eaten into by the sulphurous fumes from the steam and petrol lorries using the tunnel, and that the surface should be absolutely durable and easily cleaned and kept in order. Mr. Herbert J. Rowse designed the interior panelling at the request of Sir Basil Mott joint engineer to the Tunnel Committee. The Mersey Tunnel Joint Committee decided a considerable time ago that the sides

of the tunnel roadway should be covered with glazed tiles, largely because of the greater ease with which they could be kept clean as compared with a cement surface. Then it was suggested that the tiles should be made of glass instead of earthenware, and that their colour should be black, by way of contrast from the grey of the rest of the tunnel. Various experiments have been made in the tunnel itself, and the engineers approved of the use of glass.

Orders for Electric Cranes.

Many orders for electric cranes have been recently booked by Messrs. Joseph Adamson and Co., of Hyde, for installation at railway depots and dockyards. The fact that the electric crane orders are all, so far, for home use indicates that the revival in trade is something really substantial. The factory is now working at full strength and is expected to continue in that happy state for some months to come.

Demand for Grain Storage.

For some months heavy demands have been made upon the grain storage accommodation of the Port of Liverpool. Grain cargoes have been arriving from all parts of the world, and Mersey Docks and Harbour Board has had to provide additional storage accommodation at the Alfred Dock, Birkenhead. Further large cargoes are arriving almost daily, and the Dock Board has now found it necessary to appropriate, for the reception of vessels carrying grain, the shed on the east side of the Harrington Dock, the cargoes to be loaded and discharged by persons employed by the Board.

10,000 Bags of Concrete to Stop Erosion.

In order to form a retaining wall to prevent further erosion of the Mersey at the point of the river near the Mersey Bridge at Sale, 10,000 bags of concrete have been placed in position by the Reinforced Concrete Construction Company. In the normal way it would be possible to put in timber or steel supports, but so long as the river was in flood this was impossible. The logs have been sunk to a depth of 7-ft., and at the back of them there is heavy stone and concrete. Further serious erosion of the banks of the River Mersey is causing considerable anxiety to both the Lancashire and Cheshire County Councils.

Liverpool Docks an Example for the World.

After visiting the Mersey Docks the Canadian Minister of Marine, Mr. Alfred Duranleau, K.C., said they were improving the equipment of the docks and harbours in Canada, and as he was in control, he wanted to see if there was anything in Liverpool which would help him in his work and, at the same time, add to the efficiency of the docks and harbours in the Dominion. He had already visited French ports. As he had always understood in Canada that the Liverpool docks were the best in the world, he had come to see them for himself, and to find out if there was anything he could copy with advantage to Canada.

Electrical Pumping Plant for Birkenhead.

The Great Western Railway Co., which has expensive wharfage accommodation at Birkenhead, has decided, in conjunction with the London, Midland and Scottish Railway Company to sink a deep well on their land adjoining Bebington Station, in order to supply with water the company's engines which visit the Birkenhead area and also some of the stations in the neighbourhood. For some months past the railway engineers have been boring the well close to the railway bridge, under which passes the main road from New Ferry to Bebington, and it is expected that a depth of 500-ft. will have to be reached before a sufficient supply of water will be tapped. The pumping machinery will be electrically worked and will be automatic, the pumps working only when it is necessary to replenish the tanks.

New Rhyl Bridge.

Rhyl's new river bridge, which will convey the traffic over the River Clwyd, on the outskirts of the town, is rapidly taking form. The first span is now in position, and the work on the final cotted dam, which will carry the second and last span is in progress. The two spans will weigh nearly 300 tons each, and will allow two-way traffic and two sidewalks. The Denbighshire approach is near completion and the double approaches on the Rhyl side have been started. There is concern in the town that the old bridge might be condemned altogether before the new one is ready.

Not for Sale.

Recently the Liverpool City Council called for a report on the possibility of acquiring the land known as "Lock Fields," which being situated near the docks are the property of the Mersey Docks and Harbour Board. A Committee which has been dealing with the matter reports that the Mersey Docks and Harbour Board have been communicated with and have intimated that the appropriate committee of the Board could

Notes from the North—continued

not recommend the Board to sell any portion of the land for the purpose which the City Council has in mind, as the Board had other views for its development.

Sea Barriers Broken Down.

The south-west Lancashire coast line at Waterloo and Crosby has suffered recently because of the high tides. Several attempts have been made to provide effective barriers, including the laying of sleepers in concrete, but these have been broken down, and the concrete, broken into small pieces, is lying about the shore. Black slag, from a Bootle tinworks, which up to now has been the most effective method of checking the sea, and had been tipped in tons, was broken up, and jagged holes were left in what was thought to be an impregnable wall.

Damage to the amount of close on £25,000 was caused by storms to the new sea defence works at Barmouth. The sea undermined the promenade wall and steps for a long distance, thousands of tons of filling-in materials being washed away. At the old promenade the sea invaded the roadway and workmen took big risks when they endeavoured to save expensive plant. Owing to the damage and further high tides 100 men employed on the works were unable to continue work for a few days. Some 300 yards of the newly constructed sea wall in front of Minymor collapsed through mountainous waves dashing against it, and yards of the newly constructed promenade roadway collapsed.

Transport on Dock Estate.

In the port of Liverpool, especially for dock work, very generous use is made of horse-drawn carts, which possess economical advantages that have been maintained despite the substantial progress in the realm of mechanical haulage. It is recognised that we are powerless to stem the onward march of mechanisation, and that makes it all the more interesting why cartage contractors can still command such a big share of the dockside traffic. For distances of about 3 miles, the horse lorry is still an economic unit, owing to the very favourable conditions under which it can be operated, as a result of the modest capital outlay incurred, the small quota of annual depreciation, big load carrying capacity, and the absence of fees for road licences, etc. Mr. T. Eaton Jones, an expert in horse haulage, gave an address to the Liverpool members of the Institute of Transport recently, and he made the assertion that given the right type of animal and vehicle, the weights capable of being moved will compare favourably with those put on most of the mechanically propelled street vehicles of today. He criticised, however, the class of horse-drawn vehicles used, and suggested that the time was long overdue for improvement. There was need for a vehicle with a low loading line equipped with improved loading and ball-bearing devices. A single heavy horse can haul weights from two to seven tons per load, during a day's work, involving from 12 to 20 miles. In all the large commercial towns, the docks, warehouses and goods yards are in close proximity; in other words, there is preponderance of short hauls. Tests made on mixed loads show that when motors are employed on this class of work only about 27 per cent. of the total motor time was in actual movement; 73 per cent. must therefore have been taken up in loading and unloading, awaiting turns at warehouses, etc. Thus the advantage claimed for the motor, i.e., speed, only applies for approximately one quarter of the working day. This, he said is insufficient to counter the difference in the comparative costs of a motor unit and a horse unit.

"The craze for speed and mechanisation is fast becoming inimical to the well-being of the human race. The quick have to pay for the dead in terms of increased costs and unemployment. Other factors being equal, costs of delivery have always been proportionate to speed. At first sight the question of speed and quick delivery appear to be very favourable to the motor, but the advantage must be limited by the thought that if all the business is to be rushed out early in the morning to provide every customer with special facilities, then there is going to be a great amount of unremunerative time later in the day. If the work is spread over a longer period and a steady flow maintained, then the slower, but cheaper, mode of transport comes into its own. In order for the motor to compete economically with the horse, it is necessary that a motor vehicle of $2\frac{1}{2}$ tons type should do the work of two horses, and a motor of the $4\frac{1}{5}$ tons type the work of $2\frac{1}{3}$ horses." Each form of transport in its own sphere is a contributory factor to efficiency. The essence of efficiency is the correct blending and use of the various units. It would appear that, for firms whose hauls are mainly short distances, the ratio 1:4, that is, if 100 units are employed, 20 will be motors and 80 horse-drawn.

There was a stimulating discussion on the various points raised by Mr. Eaton Jones, in which it was urged by long-established Liverpool motor haulage contractors that the horse

had a very definite place in the commercial scheme of things, but the trouble to-day was that people thought in terms of machinery, and did not stop to consider whether horse transport could be economically utilised.

Liverpool Dock Pioneer.

An almost forgotten page of dock history was presented at a recent meeting of the Historic Society of Lancashire and Cheshire, held at Liverpool, when Mr. Henry Peet, described the work of Thomas Steers, the engineer of Liverpool's first dock. Steers, he said, was the pioneer in the science and art of dockmaking, his first work as an engineer being in connection with the wet dock at Rotherhithe. He came to Liverpool and started dockbuilding in 1710. The dock was formally opened in August, 1715. Whilst this work was in progress Steers found time to make a survey and map of the rivers Irwell and Mersey from Bank Quay, Warrington, to Manchester. In 1717 he was appointed dock master, and directed to look after the buoys and landmarks for the safe navigation of ships into the harbour; and in 1724 he also became water bailiff. Shortly before this he had become a member of the Town Council, and was twice made town bailiff. Having given an account of other dock work carried out by Steers, Mr. Peet pointed out that Steers became Mayor in 1739. What could Liverpool do to pay honour to the man who designed and built the first dock. A suggestion had been made that the Corporation could name the broad new road leading to the riverside embankment at Otterspool "Steers Avenue." Could not the Dock Board place a tablet in their offices? The corridor through the Custom House, erected on the site of the old dock, might be named "Steers Avenue."

Dock Board Refuses Concession.

With the object of attracting more shipping to Merseyside, the Liverpool Chamber of Commerce put before the Mersey Docks and Harbour Board a proposition that a special concession should be made on dues for bunkering vessels, so the traffic might be brought to the Mersey, thus benefitting the coal and oil trade, as well as the ship's store dealers in the port. The General Manager of the Dock Board replied, "I have to inform you that this matter has been submitted to the committee of the Board concerned, who have already had the matter under consideration, and who regret that they cannot see their way to grant any concession in the rates charged on the vessels referred to."

The Chairman of the Transport Committee of the Chamber of Commerce commented that it seemed a pity that steamers had to be diverted to South Wales and other ports. He hoped the Dock Board would reconsider their decision.

Ferry Traffic Speed-up Suggested.

That efforts should be made to speed up the clearance of goods traffic from the ferry steamers, at the Liverpool Pier Head is being urged by the Liverpool transport interests. One proposition is that the fast-moving traffic coming from Birkenhead and Wallasey should be allowed the one side of the floating bridge at the Pierhead normally used for downward traffic. An experiment on these lines has been suggested. Objection, however, is raised by the Liverpool police authorities on the ground that the experiment proposed would cause serious dislocation of the traffic, and delay and inconvenience to traffic to and from coastwise steamers. The Transport Committee of the Liverpool Chamber of Commerce now intends to approach the Birkenhead and Wallasey ferries on the subject.

Manchester Sludge Boat.

Manchester's old sludge boat, the "Joseph Thompson," is to be replaced by a more modern type of vessel. For 34 years the boat has been steaming down the Manchester Ship Canal into the Mersey and ten miles beyond the Mersey Bar, where she discharges on each voyage 1,000 tons of sludge. She has made 6,338 outward voyages, a distance of 60 miles and as many voyages back. Up to March last she had steamed 750,000 miles. The new boat is to be made at a British port, the Rivers' Committee has decided, but it will not be delivered before July of 1933.

Busier Traffic Conditions on Merseyside.

In the last few weeks, there has been more activity at the Liverpool docks dealing with ships from the Continent. Many of the dockside warehouses are already well-stocked with goods recently imported, many of which could, indeed, be manufactured at home, but the increase is chiefly a seasonal one, due to the anticipated Christmas trade. In an interview an official of the traffic department of the Mersey Docks and Harbour said:—"The port is busier than it has been for some considerable time, but one would need to compare the figures with those of last year in order to give an accurate opinion."

North-East Coast Notes.

UNSATISFACTORY as have been the trade reports issued recently on the North-East Coast, those submitted to various local authorities in the early days of November possessed some hopeful features. For instance, on the Tyne there was less idle tonnage, bunker shipments showed an increase and coke dispatches—although not reaching the high figures of 1930—were still more than double the output of 1913. On the Wear there was an increase in imports, and coal and coke shipments for the nine months of this year had so improved that they were only 2.2 per cent. below the figures of last year, coke itself giving a large increase.

Tyne Developments.

The Tyne Improvement Commission decided to erect new coal staiths at the west end of Northumberland Dock. The contract for the work has been secured by Messrs. F. Turnbull and Company (engineers), of Heaton Junction, Newcastle, who three years ago erected the conveyors on the Manchester Ship Canal and also placed similar machinery at Pelaw a year or two ago. The staiths will extend for about 500 feet and will contain all the latest devices for the loading of coal into ships. A feature will be the electrically-driven conveyors, which will carry the coal from the sidings direct to the holds of the waiting ships. The new staiths will be of immense value to the Hartley Main Coal Company, who have given a guarantee to the Commission to load a specified amount of coal annually. Hitherto the Company has been unable to complete the loading of big ships at their private staiths at Howdon owing to lack of accommodation, and these vessels have had to go to the Commissioners' staiths, where the water is deeper, which will be obviated by the new arrangement.



Tyne Improvement Commission : Anti-Coal Breakage Appliance,
No. 5 River Staith, Whitehill Point.

Gateshead's New Quay.

Gateshead's new quay, which has been leased by the Tyne-Tees Shipping Co. from Gateshead Corporation, was opened at the beginning of November by Alderman C. M. Morton (Chairman of the Quay and Railways Committee). The quay has been constructed to the design of Messrs. J. Watt Sandeman and Son, Ltd., and the engineering contractors were Messrs. Brimms and Co., both firms of Newcastle. The quay has a river frontage of 400 feet, the entire length now being 700 feet long. At high tide there will be 33 feet of water alongside, and the available space is approximately 24,000 square feet.

Another interesting development is the construction of a high speed wagon discharging plant, which is being installed at the Pelaw Main Colliery staiths on the Tyne by Messrs. Babcock and Wilcox. When the new plant is in operation two wagons will be mechanically handled simultaneously in a rotary tippler, which turns the trucks completely over. After the wagons have entered the tippler in tandem form, they are manipulated automatically and can be put in position and emptied in two minutes. The tippler will handle 10-ton wagons, the gross weight of each pair being 33 tons, and the whole equipment

will be driven by a single 15 h.p. motor. Sixty wagons can be dealt with in an hour.

Sharp Work on the Tyne.

The Tyne Improvement Commission announce a smart piece of work at their Whitehill Point staiths, North Shields. Only by the rapidity of despatch could the owners of the "Pearlmoor" (2,817 tons) have carried out their programme of sailing. The vessel began bunkering at mid-day on Saturday, October 31st, and was finished at 5.25 that afternoon, after loading 1,046 tons of coal or practically 200 tons of coal per hour. The steamer went into dry dock shortly after and sailed on Sunday, November 1st, at 5.20 for Emden.

The "Kate" (3,158 tons) was berthed at the same time as the "Pearlmoor" and finished at 8 o'clock on the Saturday evening. After having taken aboard 1,522 tons of coal, she sailed four hours later for Buenos Aires.

Some Trade Figures.

Mr. W. A. Souter, reviewing the Tyne coal and coke shipments at a meeting of the Tyne Improvement Commission in November, said the Commissioners' own docks and staiths were in a considerably better position in October than they had been. There was an increase in the shipments of about 22 per cent. on those of October last year. The shipments for October were the highest of any month since November, 1929. This showed the improved state of the Northumberland coal trade. He only hoped Durham had been as satisfactory. Bunker coal shipments were up.

The coal shipments from the river for the ten months of this year totalled 11,575,345 tons, compared with 14,424,978 tons in the same period of last year, a decrease of 19.75 per cent. There was an increase in the bunkers loaded during October, of 65,504 tons compared with the same month of 1930. As to idle tonnage, the figures for the river were 128 vessels of 265,259 tons at October 31st, compared with 146 vessels of 298,980 tons at September 30th, that is 18 fewer vessels of 33,721 tons.

Blyth Experiment.

With the view of eliminating breakage of coal at their Blyth staiths, the London and North-Eastern Railway have decided to instal experimentally at the West staiths a 31 feet Handcock anti-breaker. Five 28-feet Handcock appliances are already in use at Blyth, and operate efficiently in the case of the smaller vessels, but, with the larger boats now in use, the need arises for a longer appliance in order to reduce the drop into the holds. With the longer appliance the coal will be trained on to the floor of the hold of the larger vessels without breakage. A further device known as the Ross feed-controller is also to be introduced. This is a chain appliance, which will regulate the flow of coal down the hopper shoot to the conveyor belt leading to the anti-breaker, thus preventing any breakage which may occur in the discharge of coal from the waggons through the hopper.

The Chairman of Blyth Harbour Commissioners (Mr. Ridley Warham) was able to announce at the October meeting that there had been a considerable improvement in the coal shipments during the previous three weeks. For the first nine months of this year, however, a decrease of 10 per cent. was shown compared with the previous year. The shipments for the period were 3,209,492 tons against 3,572,680.

Wear Trade.

The trade reports of the Wear Commissioners for the nine months to the end of September last show a 4 per cent. decrease in coal cargoes; the total, however, 3,123,538 tons for this year compared with 3,261,845 tons last year. The largest decrease was in shipments to Germany, which fell 30 per cent., and France 20 per cent.; on the other hand, Italian trade showed an increase of 52 per cent. Foreign bunkers showed an increase of 32 per cent. and coke one of 23 per cent. Other exports from the port for the same period totalled 46,131 tons against 66,670 tons, while the imports were 227,901 tons compared with 282,993 tons.

Manchester Ship Canal Traffic.

Returns furnished by the Manchester Ship Canal Co. show that the receipts in October were approximately £98,408, which was the third largest monthly sum this year, and an increase of £5,210 on the corresponding month of last year. It is smaller than the October amounts in 1929 and 1928, which were £110,872 and £111,530 respectively, but the latter amount is not really comparable, as derating, with the consequent reduction of port charges as well as of expenses, had not come into operation in 1928. The net revenue of the whole undertaking in the first half of this year, after providing for interest and fixed charges, was £75,335 down, as compared with a decline of £90,923 in Ship Canal revenue alone.

The Port of London

The Development of the Port from the Early Ages



Blackwall Point in the Early Days.

London has been a port and market since men first came to dwell by the banks of the lower Thames, and its site was determined by the fact that it was the place nearest the mouth of the Thames where the river could be safely forded.

The first written record was by the historian, Tacitus, who in A.D. 61 described London as a well-known commercial centre. It was burnt by Queen Boadicea about the same time that Tacitus wrote, but it was soon rebuilt and rapidly grew into a town of renown, its fame spreading abroad.

London developed as a port under the Romans. After their departure the history of the City is obscure. Definite reference is again made to it in the "Anglo-Saxon Chronicle" in the year 457.

By the year 527, London had become the capital of the East Saxons, and the Venerable Bede mentions that in the year 601 London was the market of many nations, who resorted to it by land and sea.

In the early part of the ninth century the Danes made their appearance, and after plundering the town established themselves as merchants and developed foreign trade. King Alfred the Great drove out the Danes in 883 and, having fortified and rebuilt the City, turned his attention to providing more facilities for the accommodation of shipping. He caused Queenhithe, London's earliest "Dock," to be built.

The next great historical event was after the Norman invasion. William the Conqueror at once recognised the importance of London and granted its citizens a Charter.

Individual foreign traders had for long frequented London before—in the eighth century the organised Easterlings established themselves at Billingsgate. The Easterlings developed into the Hanseatic League, and under a protective clause in the Magna Charta began to frequent London in large numbers. It was several centuries before the merchants of London, aggrieved at the domination by the League of the trade of the port, formed Associations of Merchant Adventurers and

gradually absorbed London's trade and secured the expulsion of the League from the country.

In Elizabethan times the glorious exploits of Hawkins, Drake, Raleigh and Frobisher opened out wide avenues for the increase of London's trade, and by the end of the sixteenth century London had become the commercial centre of the world. "The Company of Merchants of London Trading into the East Indies," the greatest of all the English trading companies, received its Charter from Queen Elizabeth in 1600. In the great development of trade which took place in Elizabethan times, London's trade grew faster than that of any other port in the country, and London contributed one-half of the total Customs revenue at this period.

All this time ships were small and modest port facilities sufficed, small "wharves" or "hithes" of stone or timber being the only accommodation required. These increased in size and number as the trade of the port developed, and on account of attempts made to evade Customs duties by the use



Opening of West India Dock, 1802.

The Port of London—continued



East India Dock (from an old print).

of private landing places, efforts were made to regulate the situation by Royal Proclamation.

After the Great Fire of 1666, when a great deal of the port's quay and warehouse accommodation was destroyed, "legal quays" were appointed to be used for general trade, and "Sufferance Wharves" had restricted privileges and were employed under conditions approved by the Commissioners of Customs.

During the 18th century the monopoly of the owners of the somewhat limited wharf accommodation militated against the efficiency and development of the port, charges being too high, and there was congestion owing to the much larger number of ships to be accommodated with resultant delay to ships and goods. There were also complaints that the river had been allowed to silt up, and that there was insufficiency of moorings and of warehousing accommodation. The large and valuable cargoes of merchandise lying unprotected in the open river led to plundering and smuggling on a large scale. It was said that there were some 11,000 water and riverside thieves engaged in organised robbery involving merchants and the public revenue in annual losses variously estimated to amount up to £800,000.

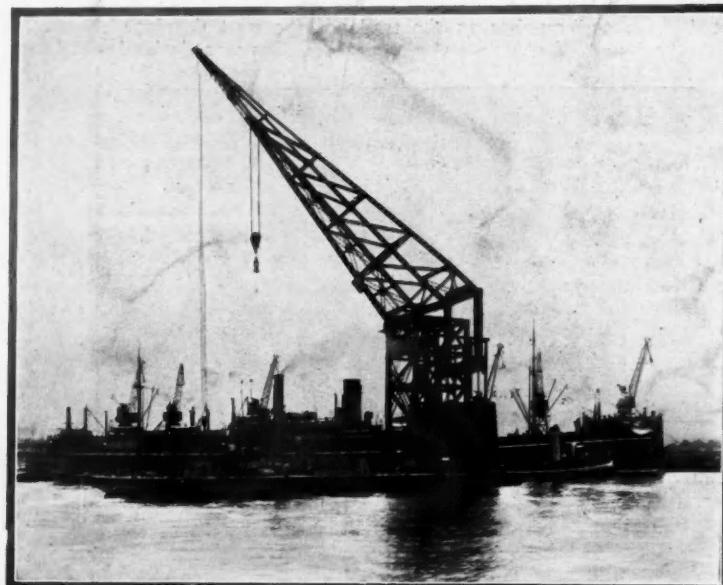
In 1796 a petition was presented to Parliament which gave rise to a House of Commons Committee being appointed to enquire into the best means of providing accommodation for the increased shipping and trade of London, but found itself unable to make any satisfactory recommendations. Soon afterwards, however, the Parliamentary Committee that sat on a proposition for the construction of a dock at the Isle of Dogs sub-

mitted by the West India merchants stated in their report that "the establishment of docks appears to the Committee to have so many advantages which a tidal river cannot under any circumstances afford independent of them from the security they give to shipping at every season of the year, and from the convenience of loading and unloading cargoes in them, that your Committee would consider any plan for the improvement of the port imperfect of which wet docks did not make a part." Parliamentary sanction was forthcoming and the West India Dock was opened on August 27th, 1802. This event led to a wave of similar enterprises in the Port and three years later the London Dock was opened just below the Tower of London. The East India Dock was opened in 1806 and was followed by the St. Katharine Dock in 1828; the Royal Victoria Dock in 1855, the Millwall Dock in 1864, the Royal Albert Dock in 1880, and the Tilbury Docks in 1886 and King George V. Dock in 1921. The Surrey Commercial Dock system, the only docks on the south side of the river, came into existence dock by dock between 1796 and 1876. All these docks have been extended and modernised from time to time since they were originally constructed.

It is not necessary to recount here in whom the administration, such as it was, of the Thames was vested during the Early Middle Ages. For many years it was controlled by the Corporation of the City of London, until an agitation for an improvement of the river channels, the removal of obstructions and the better regulation of traffic led to the creation in 1857 of the Thames Conservancy. In this public body was vested generally the state, right and title of the Crown and Corporation in the bed and soil of the Thames, and it had powers over the preservation or regulation of the river as well as being responsible for the necessary dredging. It was also empowered to levy tolls on shipping using the Thames.

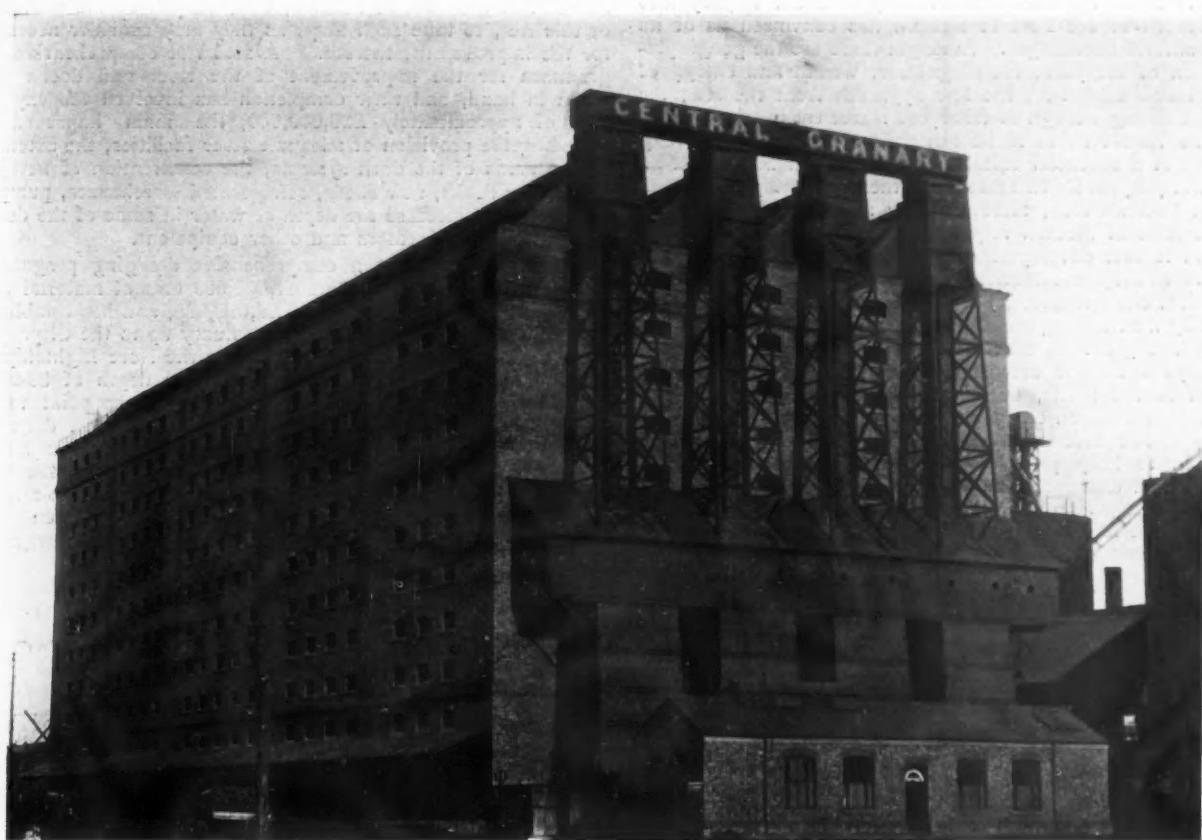
In succeeding years the competition between the various dock proprietors and wharfingers became exhaustingly keen, and such low rates were quoted for dealing with ships and goods that insufficient funds were available to meet proper maintenance of charges and to carry out extensions which had become imperative owing to the larger vessels being built.

The climax came in 1899, when the London and India Docks Joint Committee sought powers to make a charge on barges entering the dock for the purpose of discharging or receiving goods. Under the Act to construct the first docks, the West India Docks, barges engaged *bona fide* in collecting and delivering goods were allowed to use the dock without payment of dues, and the "free water clause" had persisted in all subsequent Acts for dock construction. The Bill aroused great opposition and was rejected by Parliament. The alarm had been raised, however, and the future of the Port of London was considered of such great importance nationally that a Royal Commission was appointed to go into the matter. In June, 1902, the Commission reported that they recommended the creation of a new Authority or Public Trust to take over and administer the property, powers and obligations of all the dock companies and



The 150-ton Floating Crane "London Mammoth."

The Port of London



Central Granary, Millwall Dock.



Grain Discharging.

The Port of London—continued

those of the Thames Conservancy within the tidal reaches of the river.

The confidence of the Commission in the future of the port is emphatically indicated in the concluding paragraph of their report. It reads : " We desire to say that our inquiry into the conditions of the Port of London has convinced us of its splendid natural advantages. Amongst these are the geographical position of the port; the magnitude, wealth and energy of the population behind it; the fine approach from the sea; the river tides strong enough to transport traffic easily to all parts, yet not so violent as to make navigation difficult; land along the shores of a character suitable for dock construction and all commercial purposes. In addition to these advantages, London possesses docks which, although they are not in some cases upon the level of modern requirements, are yet capacious and capable of further development. The deficiencies of London as a port, to which our attention has been called, are not due to any physical circumstances, but to causes which may easily be removed by a better organisation of administrative and financial powers. The great increase in the size and draught of ocean-going ships has made extensive works necessary both in the river and in the docks, but the dispersion of powers among several authorities and companies has prevented any systematic execution of adequate improvements. Hence the port has for a time failed to keep pace with the developments of modern population and commerce, and has shown signs of losing that position relatively to other ports, British and foreign, which it has held for so long. The shortcomings of the past cannot be remedied without considerable outlay. We are, however, convinced that if, in this great national concern, energy and courage be shown, there is no reason to fear that the welfare of the Port of London will be permanently impaired."

The first attempt to implement the recommendations of the Royal Commission were not successful, and it was not until 1908 that the Port of London Act was passed and the Port of London Authority was set up.

The properties vested in the new Authority were acquired at a cost of £28,000,000, and Sir Hudson E. Kearley, M.P., who later became Viscount Devonport, was appointed its first Chairman.

The constitution of the Port Authority provides for a minimum of 28 members and a maximum membership of 30. Ten are appointed. The Admiralty appoint one member, the Ministry of Transport two, the London County Council four, the Corporation of the City of London two, and the Corporation of Trinity House one. Eighteen members are elected by the payers of port dues and charges, wharfingers and owners of river craft. It is permissible for the Chairman and Vice-Chairman of the Authority to be elected by the Board from outside their membership. Such a constitution ensures ample representation for ship-

owners, traders and merchants upon whom fall the payment of the port's dues and charges.

The first duty of the Authority was " to take into consideration the state of the river and the accommodation and facilities afforded in the Port of London, and, subject to the provisions of this Act, to take such steps as they may consider necessary for the improvement thereof." A series of comprehensive programmes for the improvement of the river and docks were taken in hand, and their completion has involved the expenditure of approximately £20,000,000, the main improvements including the provision of adequate river facilities, the extension of the areas of the dock systems, the construction of new wet docks, dry docks, new sheds, refrigerated warehouses, pumping installation to increase the depth of water in some of the docks, floating cranes, elevators and other equipment.

The carrying out of a comprehensive dredging programme involved the removal of some 47,000,000 tons of material from the bed of the river at a cost of £2,000,000, and has established a good navigable channel from the estuary up to the City. For a distance of 35 miles up the river from the Nore Lightship the channel is 100-ft. wide and has a general depth of 30-ft. at mean low water spring tides. From the latter point to the Royal Albert Dock—six miles—the channel is 27-ft. deep and 600-ft. wide. Through Woolwich Reach to Bugsbys Reach, and, with some variations, so far as the entrance to the West India Dock, a distance of just over four miles, there is a ruling depth of 20-ft. and a width of 600-ft. Beyond that the channel continues sufficiently wide and deep to enable fairly large sea-going steamers to ascend to the Pool of London. Above London Bridge the river, of course, becomes less deep and traffic is restricted to barges and shallow drafted craft.

Local conditions have brought about the evolution of a craft with peculiar characteristics which is universally known as the "Thames barge." The majority are dumb barges, but a number of sailing barges are still a picturesque feature of the port. In all, there are some 9,000 of these barges continually plying to and from the docks and the wharves and factories which line the banks of the Thames.

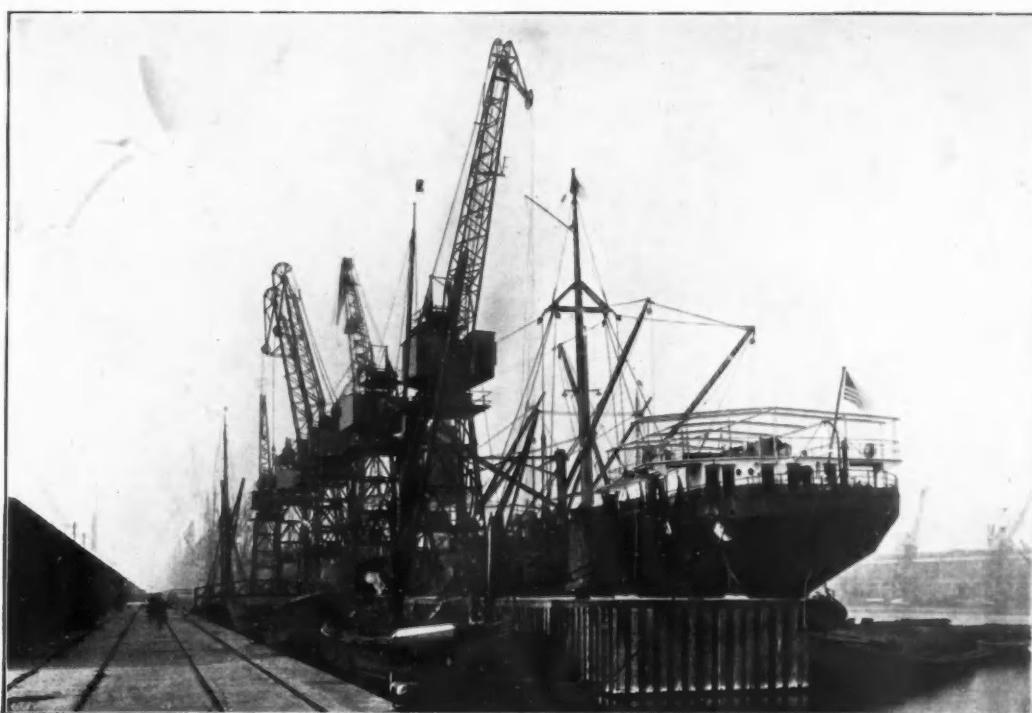
The river duties of the Port of London Authority include all matters relating to navigation, the maintenance of adequate river channels, the regulation of traffic, the licensing of constructions which extend into the river below high water mark, which is the limit of the Authority's jurisdiction on both banks of the river, the location and removal of wrecks and obstructions, the prevention of pollution and the registration of certain craft employed exclusively within the limits of the port.

The Port Sanitary Authority, a department of the Corporation of London, are responsible for sanitary supervision as far as shipping is concerned. The Corporation of Trinity House



Interior of Dock Transit Shed.

The Port of London

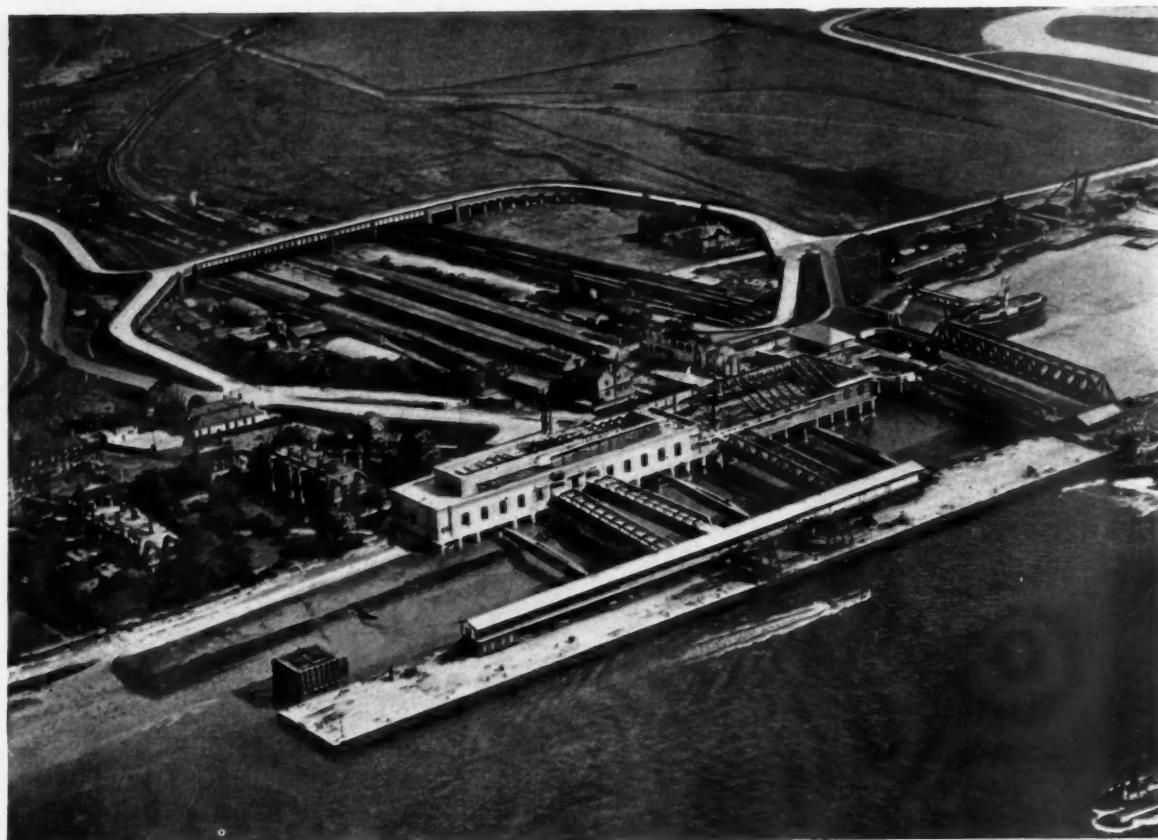


South Quay, King George V. Dock.



Commercial Road Warehouse.

The Port of London—continued



Passenger Landing Stage, Tilbury.

carry out the lighting and buoying of the river and the supervision of the river pilots.

The detection and prevention of crime on the river is in the hands of the Thames Police, a section of the Metropolitan Police.

Between 1909 and 1930 the annual net register tonnage of shipping entering and leaving the Port of London rose from 38,510,989 net registered tons to 58,083,575 net registered tons. The total value of overseas trade dealt with in the Port of London during this period increased from just over £322,600,000 to £603,743,000 per annum, and represents over one-third of the total overseas trade of the United Kingdom.

Primarily, London's greatness as a port is attributable to the enormous market which it serves. There is a population of over 8,000,000 within a radius of ten miles of London, and more than one-third of the total population of the United Kingdom reside within the radius of 100 miles.

A preliminary report dealing with the census of England and Wales taken in April, 1931, reveals clearly that in the last decade the population within 25 miles of the Port of London has grown very materially, the population of Greater London being 8,202,818. The counties north of Cheshire and Yorkshire have together on balance lost 443,000 of their populations by migration during the past decennium, the central belt of Wales 259,000, the Midlands 81,000, and the Eastern region 41,000. On the other hand, both the Southern regions (South-West and South-East) gained by migration, the bulk being registered, as might be expected, in the South-Eastern section. A shrewd commentator on the census returns observes that "standard or falling populations in the North have been accompanied by an enormous increase in and around the Metropolis." The centre of industrial gravity in this country (England) appears definitely to be shifting to the south corner, where new and relatively

prosperous industries are springing up to redress the decline of the staples of the provinces. This means, of course, that the market for whatever reaches London in ships is now larger than ever before. In addition to the enormous population resident in the area served by the port, London, because of its social and political importance, is always thronged with visitors of all nationalities who, of course, contribute largely to the purchasing power of the Metropolis.

The bulk of the vast trade that flows through London is handled in that stretch of the Thames which lies between London Bridge and Tilbury. On the banks between these points are situated all the docks and most of the important wharves and jetties. The five great dock systems with 723 acres of water and 47 miles of deep water quays are owned by the Authority, and possess warehouses and granaries for the storage of a million tons of merchandise with all the appurtenances and equipment for the efficient handling of every variety of cargo. All these docks, with the exception of the Surrey Commercial Docks, are situated on the north bank of the River Thames, and with the exception of the London and St. Katharine Docks are connected with the main railway systems of the United Kingdom. From the Port of London there are regular and frequent services of steamers for the transport of cargoes to the Continent of Europe and to all the principal and many of the minor coastal ports of the United Kingdom. The railway systems of the neighbouring Continental countries converge on ports nearest to London and offer a ready means of distribution in Europe of commodities sold transhipped in the port or in the London markets.

(To be continued.)

[The conclusion of this article will appear in our next issue, when details of the various docks will be given, and the Port of London will also form the Supplement for the month.—Ed.]

Fleetwood Dock Personnel.

Owing to the death of Captain E. Taylor, harbour master of Fleetwood, certain staff changes have taken place. Mr. J. Maskell, who formerly was dock master, has been appointed harbour and dock master with two assistants, Mr. W. Gerrard and Mr. C. W. Wood, instead of one, as hitherto. The appointment of Mr. C. W. Wood as assistant dock and harbour master is a new one. Mr. Wood comes from Heysham, where he has resigned his position as officer on the railway company's Belfast mail steamer. Previous to the

steamers being removed from Fleetwood to Heysham a few years ago he resided at Fleetwood.

Pollution Troubles.

Developments of the Liverpool foreshore at Speke are being held up by the opposition of the Dock Board to the further pollution and clogging of the Mersey. The disposal of sewage of the Merseyside boroughs has become an aggravated problem having regard to the need of preserving the interests of the Mersey Docks and Harbour Board.

The Port of New York

Latest Data issued by the Bureau of Commerce

Progress in the Development of Jamaica Bay.

JAMAICA BAY, situated at the very entrance to New York Harbour, offers a vast territory for future expansion of port facilities and industrial sites. A direct approach from the Atlantic Ocean will be provided for deep water shipping upon the completion of the authorized Federal project of 30-ft. depth up to the head of Cornell's Creek. By June, 1932, the Federal Government will have spent over \$5,000,000 in improving and maintaining the channel. Seven million dollars more will be required to complete the project.

An important part of the improvement programme for this year has been the construction of a protective jetty from Rockaway Point along the line of the channel to protect it from filling up with sand from the action of the sea. Already 4,900 feet of the jetty has been completed on contract by the Merritt, Chapman and Scott Corporation, and the entire length of 8,400-ft. is scheduled for completion by October, 1933. With the entrance channel protected by the jetty, dredging operations for deepening the entrance channel to 30-ft. will be commenced.

In order to get Federal assistance in the dredging of the 30-ft. ship channel, the City of New York has appropriated over \$10,000,000 for improvements including bulkheads, channel dredging at Mill Basin, the extension of Flatbush Avenue to Barren Island, installation of a ferry service across Rockaway Inlet, construction of a boulevard to the Rockaways, construction of a pier at Canarsie, and acquisition of property for a railroad connection from the head of Padergat Basin to the Bay Ridge Division of the Long Island Railroad. In connection with the latter, the Port of New York Authority, on November 26, 1929, communicated with the Borough President of Brooklyn offering to finance and construct such rail connection provided the City would undertake to furnish right-of-way, franchise, and easements, and lease the line for an annual amount sufficient to pay interest and amortization charges. Since that time the City has used its own credit to pursue the construction of this rail spur and progress is already being made in taking the spoil from the dredging of Padergat Basin to throw up the embankment for the rail spur. A special committee is negotiating with the Long Island Railroad for operation of the rail spur.

Foreign Trade at the Port of New York.

The value of foreign trade at the Port of New York during the month of August, 1931, amounted to \$140,632,000 as compared with \$196,769,000 during the same period last year, a decline of 28 per cent., but representing 42 per cent. of the foreign trade of the United States as compared to 38 per cent. a year ago.

Exports were \$59,209,000 as against \$97,685,000 a year ago, a decline of 40 per cent., and imports were \$81,423,000 compared with \$99,084,000 in August, 1930, a decline of 18 per cent.

	August 1931	August 1930	Net Change Amount	Per Cent.
Exports	... ...	59,209,000	97,685,000	-38,476,000 -39.5
Imports	... ...	81,423,000	99,084,000	-17,661,000 -17.8
Exports and Imports	140,632,000	196,769,000	-56,137,000	-28.5

The decline in dollar value of exports is greater than the drop in actual tonnage. Prices of the principal commodities exported have undergone a precipitous decline. The National Foreign Trade Council estimates that the "Export Dollar" for the first half of 1931 is 18 to 20 per cent. lower than in the corresponding period of 1930. This would indicate that the actual tonnage exported in August, 1931, was about 20 per cent. less than last year.

The latest available statistics of cargo tonnage from the United States Shipping Board, covering the first quarter of 1931, show a decline in export tonnage of 19 per cent., although the dollar values were off 39 per cent.

The Shipping Board figures indicate that the Port of New York, while sharing in the nation wide commercial depression, secured 2.7 per cent. more of the total foreign trade tonnage of the United States than during the same period of 1930. These tonnage statistics for the first quarter of 1931, January to March inclusive, were as follows:—

Foreign Trade (Long Tons).

	January-March 1931	January-March 1930	Net Change Amount	Per Cent.
Port of New York	... 4,963,000	5,782,000	-819,000	-14.2
Total United States	... 16,397,000	20,946,000	-4,549,000	-21.6
Per cent. via New York	... 30.3	27.6		

One of the large items in the United States exports through the Port of New York is machinery for agricultural, industrial, and electrical uses. For the three months ending in August the exports of these three types of machinery through the Port accounted for nearly one-quarter of the total exports. Although more than \$46,000,000 worth of machinery was exported between June and August of this year, the total was \$10,000,000 less than last year's figures for the same period. One important customer which is cutting down the purchase of machinery in the United States is the U.S.S.R., to which was exported in the year 1930, \$87,000,000 worth of machinery, nearly all through this port. The Amtorg Trading Corporation, representing the U.S.S.R., reports that its total purchases of goods in the United States up to the end of August amounted to only \$48,500,000 as compared to \$88,400,000 in the same period of 1930. Purchases are being shifted to European countries where favourable credit terms have been arranged, in a number of cases with Governmental backing. Purchases by the Soviet Government in Germany have nearly doubled in the first half of this year as compared with last year, amounting to \$113,000,000 for the first six months of 1931.

Grain Exports.

The export shipment of grain from the Port of New York took a downward turn during the month of August, 1931, as compared with July of this year, and with August, 1930, exports of domestic grain falling off 5 per cent. from last year and Canadian grain in transit 46 per cent.

	August 1931	1930	Net Change Amount	Per Cent.
Through the Port of New York:				
Domestic and Canadian Grain	3,290,000	5,220,000	-2,630,000	-44.4
Domestic Grain	... ...	188,000	197,000	-9,000 -4.6
Canadian Grain	... ...	3,102,000	5,723,000	-2,621,000 -45.8

Commerce at Port Newark.

Receipts of lumber by vessel at Port Newark, which is part of the Port of New York district, during the month of September, 1931, amounted to 18,621,000 board feet, as compared with 14,335,000 board feet, received during the same month last year, an increase of 30 per cent.

Inland shipments from Port Newark reached a total of 24,662,000 board feet, of which 7,012,000 board feet moved by railroad, and 17,650,000 moved by truck.

Receipts by vessel of cargo other than lumber amounted to 16,091 tons, which is an increase of 5 per cent. over the same period in 1930.

Seventeen steamers arrived at Port Newark during the month, the same number as in September, 1930.

Further recovery in the lumber business at Port Newark may be expected if recommendations of Examiner Cheseldine of the Interstate Commerce Commission for the removal of discrimination against Port Newark in the matter of absorbing cost of loading intercoastal lumber into freight cars are adopted by the Federal commission. The railroads serving Baltimore, Philadelphia, Wilmington, Chester, and Camden absorb the cost of loading from ship to car, which averages about \$12.00 to \$15.00 per car, but have refused to do so at Port Newark. Inland shipments by rail have accordingly suffered.

After failing to convince the carriers that this discrimination should be corrected by voluntary action, the City of Newark, Newark Chamber of Commerce, and shippers, took the matter to the Interstate Commerce Commission by formal complaint against the Pennsylvania Railroad, and the Port of New York Authority intervened and took an active part in presenting evidence and legal argument directed at removing the discrimination. It is expected that the Interstate Commerce Commission will direct the railroad to remove the discrimination either by absorbing the loading charges at Newark or by cancelling the absorptions at the other ports, thereby restoring parity in treatment.

Steamship Passenger Traffic.

So far this year steamship passenger arrivals and departures to or from foreign countries via the Port of New York total 163,361 less than that of the same period last year, a decrease of almost 28 per cent. This best illustrates how steamship passenger travel, particularly to foreign lands, has been hit by general business conditions.

The number of incoming immigrants have dwindled to very small figures, accounting for part of the decline, but are partially offset by an increased outbound wave of emigration of aliens. Foreign travel of United States citizens, which

The Port of New York—continued

was well maintained through the year 1930, has shown a decline this year amounting to about 25 per cent. in recent months compared to 1930.

INBOUND—		August, 1931	August, 1930
Aliens, Immigrant	...	2,253	9,064
Aliens, Non-Immigrant	...	11,465	18,752
U.S. Citizens	...	46,431	61,324
Total	...	60,149	84,128
OUTBOUND—			
Aliens, Emigrant	...	6,196	3,620
Aliens, Non-Emigrant	...	18,669	22,319
U.S. Citizens	...	55,373	75,376
Total	...	80,238	101,315
Total Inbound and Outbound	...	140,387	185,443
Total for 8 months	...	562,820	726,181

This curtailment of over-seas travel has been partially offset by a large increase in the number of short cruises which are now a definite feature in the travel opportunities at the Port of New York. Most of these short cruises have been made to Bermuda, Halifax, and other nearby foreign ports.

The opportunities for economical travel to Europe both in luxurious first-class and comfortable cabin and tourist-third quarters are increasing with the efforts of the steamship companies to bring their service within reach of every purse. Recent cuts in first-class rates of 15 per cent. and up have brought minimum prices for these accommodations on the larger liners down to approximately \$240.00 for one-way travel.

A number of the well known ships have been converted from first to cabin class with little change in accommodations but a reduction in cost to a minimum of approximately \$300.00 a round trip. A number of the newer vessels, such as the Britannic and Lafayette, put into service this year, are designed and operated as cabin ships.

Tourist-third class facilities, which represent in many cases the conversion of the old second cabin quarters, can be had on the larger ships at rates about half that normally charged for second class passage. A traveller in one of these rooms on the Berengaria or Aquitania now pays a berth rate of \$152.50 one way, and round trips on the Majestic and Olympic cost \$216.000. On smaller ships one-way passages to England can be had for \$100.

Steamship Sailings.

The steamship lines in foreign service continue to scale down the number of sailings to a point approximately 10 per cent. less than last season. Sailings during the month of September in the United Kingdom, Baltic, Hamburg-Bremen, Italy-Mediterranean, Caribbean-Mexican, South American and Australian trades are all under the same month last year. However, the present service is still adequate to take care of the huge volume of passenger and freight traffic that moves through the Port of New York. For instance, the September sailings included 48 direct to the United Kingdom, 24 to Hamburg or Bremen, 19 to Italy and Mediterranean ports, 123 to Caribbean-Mexican ports, 21 to the East Coast of South America and 21 to China-Japanese ports. This averages more than 30 sailings weekly in the Caribbean-Mexican trade down to 5 each week in China and Japan. More than many ports have in a month. Domestic sailings remain about the same as last year and there has been little or no curtailing of schedules in intercoastal service which average a sailing a day direct to the Pacific Coast during September.

As usual, Saturday continues to be the big sailing day of the week, and September 5th, with a total of 85 sailings, was the peak day of the month. Foreign sailings accounted for 36 of this number and included 6 to the United Kingdom, 6 to North European ports, 8 to Caribbean-Mexican ports, 2 to the River Plate, 2 to China and Japan, 1 foreign cruise and 3 tankers. The 49 domestic sailings included 6 to the Pacific Coast, 9 to South Atlantic and Gulf ports, 6 tankers and 3 coal carriers.

Vessel Movements in Foreign Trade.

The number of entrances and clearances of vessels in foreign trade at the Port of New York during the month of September, 1931, were less than during the same period a year ago.

	September, 1931		September, 1930	
	No. of Vessels	Tonnage	No. of Vessels	Tonnage
Entrances	523	2,724,761	591	2,877,309
Clearances	522	2,651,711	555	2,691,523

New York State Barge Canal.

Since the opening of navigation on the Canal this season, a total of 2,820,034 tons was carried up to October 10th. This is just 34,758 tons less than was carried during the same period in 1930. The Erie Division of the State Canal System is actually ahead of last season, as the total volume up to October 3rd aggregates 2,383,255 tons, or a gain of 59,446 tons over 1930. The Oswego Division has also increased, but

the Champlain and Cayuga-Seneca Divisions registered decreases in comparison with 1930, the former division's loss amounting to 64,410 tons.

As has been the case throughout the Canal history, wheat comprises by far the bulk of the tonnage moved. So far this season 829,263 tons of this commodity has been moved, which is 62,196 tons less than was carried during the same period in 1930. Flour shipments have shown a gratifying increase of 26,827 tons over 1930, as this commodity has heretofore never constituted an important item of Canal tonnage.

Iron and steel articles, total 152,553 tons, compared with 117,049 tons in 1930. Part of this increase is accounted for by the new service recently instituted by the Ford Motor Company for the movement of auto parts between Detroit and Edgewater, New Jersey. The movement of pig iron and billets this season only amounts to 58,857 tons compared with 99,886 tons carried in the same period last year. Sugar shipments, however, total 250,700 tons, or more than double the 104,128 tons carried in 1930. Chemicals and drugs this season total 81,191 tons, which is an increase over the 1930 figures of more than 72,000 tons. Shipments of fertilizer so far total 77,653 tons, which is 15,817 tons less than was carried during the 1930 season.

The New York State Barge Canal is proving a very direct benefit to a number of seaboard cities and towns outside of the State. Sugar and pig iron moved this season between Massachusetts and Great Lake points, and recently several cargoes of automobile parts originating in Detroit, moved to Chester, Pa. Return cargoes of soap were picked up at Camden, N.J., for delivery at Chicago, the westbound voyage being made in the record time of nine days. Quite a large quantity of sugar has also moved by the Canal route from Philadelphia refineries to Great Lake ports.

The usefulness of the Canal in furnishing an all-water route between the Great Lakes and Atlantic seaboard over which shipments can be routed with directness and despatch is illustrated by a comparison with an all-water movement from Antwerp to Chicago via the St. Lawrence, which received some recent publicity. A ship, with Belgian wire consigned to a large Chicago distributor, took thirty-three days in transit from Antwerp, where the wire was loaded, to Chicago, stopping at intermediate ports and travelling through the St. Lawrence waterway route. The same consignment, if handled by the direct service from Antwerp to New York and thence by barge through the Canal and Lakes, would have taken about half the time.

Weser River Shipping in September, 1931.

The water level on the Weser during the month under review rose, with fluctuations, until the 8th September, and then fell continually, also with fluctuations.

Only on two days was the water level on the Upper Weser sufficient to permit full loading of the smaller barges, with 1.85 metre draft (draft depth 1.94 metre on the 8th and 1.85 metre on the 9th). On the Middle Weser full loading of barges was possible on ten days.

The average draft depths were for the Upper Weser 1.66 metre and 1.90 metre for the Middle Weser against 1.43 metre and 1.81 metre respectively in the previous month.

Goods traffic through the Bremen Weser Lock in both directions amounted to 141,600 tons in September. That is 6,100 tons less than in the previous month. The decrease is solely in downstream traffic. This only reached 110,000 tons, or 14,000 tons less. The chief reason for this is the decrease in coal supplies from the interior by 13,200 tons. This is a consequence of the English currency crisis, as sea-borne coal imports rose at the same time in the Weser Ports from 12,000 tons in August to 35,400 tons. Of the other most important goods, gravel and stones were 2,200 tons lower, potash and salt on the other hand rose by 4,300 tons. Upstream traffic with 31,500 tons, increased by 8,300 tons as 4,500 tons more grain and 2,700 tons more coal were shipped. In comparison with September of the previous year downstream traffic shows a loss of 31,900 tons; upstream traffic shows an increase of 4,700 tons.

During the past nine months the total amount loaded was 396,500 tons, or one quarter less than in the previous year. Of this 354,200 tons fall to downstream traffic in which gravel and stones decreased by 61 per cent., and potash and salt by 40 per cent. Upstream the decrease amounted to 42,300 tons. Grain lost 30 per cent., timber 46 per cent. On the other hand coal transport (English coals and Norddeutsche Hütte, Bremen, coke) to the interior rose six-fold. If one compares the result for these nine months with the development of the first half-year, a 5 per cent. recovery may be seen, or in detail: downstream 3 per cent.; upstream 6 per cent. It must, however, be taken into consideration that this is a seasonal improvement.

Mersey Docks and Harbour Board

Annual Report for the Year ended 1st July, 1931

AT a meeting of the Mersey Docks and Harbour Board, held on November 19th, 1931, the annual report was presented by Richard D. Holt, Esq., Chairman. The report was as follows:—

"Gentlemen,

"The Accounts for the year ended July 1st, 1931, are now before you, together with the Engineer's Report on our Works during the same period.

"The Accounts do not make very cheerful reading and compare unfavourably with those for the preceding year, but it must not be forgotten that the year under review has been exceptionally bad in almost every country and almost every trade.

"Taking the revenue side of the Accounts—as compared with the year ended July 1st, 1930, there is a falling off of £355,267, made up as follows:—

Rates and Dues	...	...	...	£39,593
Rents of Property	...	...	...	6,309
Dock Traffic, etc., Group	...	...	...	41,633
				<hr/>
Less increase in Warehouses Surplus	...			357,535
				2,268
				<hr/>
				£355,267

"The number of Vessels using the port has dropped from 20,771 to 19,731 and the tonnage from 21,314,820 to 19,843,228. It may be interesting to note that the tonnage of vessels using the Board's docks was 15,122,564 as compared with 15,104,996 in the year ended July 1st, 1914, which was much the best year before the War. There is a slight increase in the tonnage of vessels in the Coastwise Trade actually using the docks, in all other departments there is a falling off. The revenue from ships is reduced by £141,593 and that from goods by £168,000, so the loss is almost equally divided.

"In order to provide for the Sinking Fund it is necessary to transfer £100,000 from the accumulated surplus of the Insurance, etc., Account, and of course it was impossible to set aside anything for our reserves.

"On the expenditure side there is a reduction of £95,782 of which the largest item is in rates and taxes—the De-rating Act having been in operation for the whole financial year, whereas in our last financial year it only affected nine months.

"A satisfactory item is the reduction of £24,631 in interest due to the renewal of Bonds at lower rates of interest. During the year Bonds have been issued and/or renewed at 5 per cent., 4½ per cent., 4⅔ per cent. and 4⅓ per cent. Bonds for £3,912,891 bearing interest at an average rate of £5 8s. 11½d. per cent. were either paid off or renewed during the year. Of these £2,695,092 were renewed at an average rate of £4 16s. 0½d. per cent., while new money to the amount of £1,772,360 was borrowed at an average rate of £4 14s. 6½d. per cent.

"We were able to issue Promissory Notes at rates varying from 2⅔ per cent. to 2⅓ per cent., the former rate being almost the lowest figure at which the Board has ever obtained a loan. The rates at which we issued these notes, as compared with the average rate we paid for our bonds, show a saving of £10,000.

"From what I have already said it is obvious that the Board has no funds out of which any general reduction in charges can be made. A little consideration will show that the expenditure on the Estate does not fluctuate in proportion to the business done—one-half of the expenditure consists in the payment of interest on the debt, and the rate of interest depends upon the financial conditions prevalent throughout the world, and not upon the amount of traffic passing through Liverpool. The next largest item is the expenditure in the engineer's department for maintenance of the Estate, which depends upon the amount of traffic only to the extent to which it is possible to defer repairs to premises for the time being out of commission. There is no connection between the work necessary to be done in order to maintain the channels and dock entrances in a proper condition and the fluctuation in the number of vessels using them.

"The Board has made every effort to reduce expenditure and many substantial economies have been effected but these do not and cannot amount to any large proportion of the total expenditure. A Special Committee which was appointed in August last has gone through the expenditure most carefully and put forward further valuable suggestions which are being adopted. These economies naturally do not affect the accounts under review but will undoubtedly help towards improving our

position next year, and it must not be overlooked in making comparisons that the working area of the Dock Estate is 18½ per cent. greater than it was in 1914.

"Small reductions in charges are being made constantly—generally with the object of retaining or obtaining traffic which would otherwise pass through some competing port, thereby ensuring or increasing the revenue of the Board. Generally speaking of recent years it has been our policy to relieve the charges on goods rather than upon ships, thinking that the gain to the ship through obtaining freight on the cargo is greater than any advantage that could be conferred by a reduction in charges on the ship. Under modern conditions when the bulk of the traffic coming to our principal ports is carried by regular lines acting in conference, the rates of freight to the principal ports in this country and on the Northern Continent are the same and would not be reduced as a consequence of any reduction in the charges at any particular port. No one can believe that a reduction of 10 per cent. in the dues on ships coming to Liverpool would be followed by a reduction in the freights to or from Liverpool, as compared with those to or from Glasgow, Manchester, London, Antwerp or Hamburg, but the same amount of money distributed by reduction in dues on cargo judiciously selected would bring business to the port which would otherwise travel by other channels.

"Comparisons between the expenditure at different ports are not valuable unless the whole sphere of operations is taken into account. The same charges in name do not always cover the same services, nor are the facilities obtained by any particular payment such as port charges, always or even frequently of the same value. The policy of the Board during the 35 years of my experience has been that of providing first-class accommodation and for those who require first-class accommodation it is by no means a dear port, but it must be admitted that the result of this policy is that the port is not cheap for those who can be satisfied with inferior or possibly primitive accommodation. It must not be forgotten that one of the reasons why Continental ports are so much cheaper than British ports is the wholly different scale of wages paid to the dock labourers at those ports.

"The Engineer's report on the Dock Works is also before you. It shows a satisfactory state of affairs but as little new work is in hand there is nothing in it to which attention can be usefully directed. If there are enterprising people contemplating new factories for dealing with imported raw materials or for the export trade I can recommend them to have a look at the site at Bidston Dock which is within measurable distance of being available.

"Again I wish to express the thanks of the Board to all our officials for admirable and cheerful work during a discouraging year."

Institution of Civil Engineers.

At the informal meeting on Wednesday, the 11th November, presided over by Sir Clement Hindley, K.C.I.E., member of the Council, the subject of "Modern Means of Transport" was discussed.

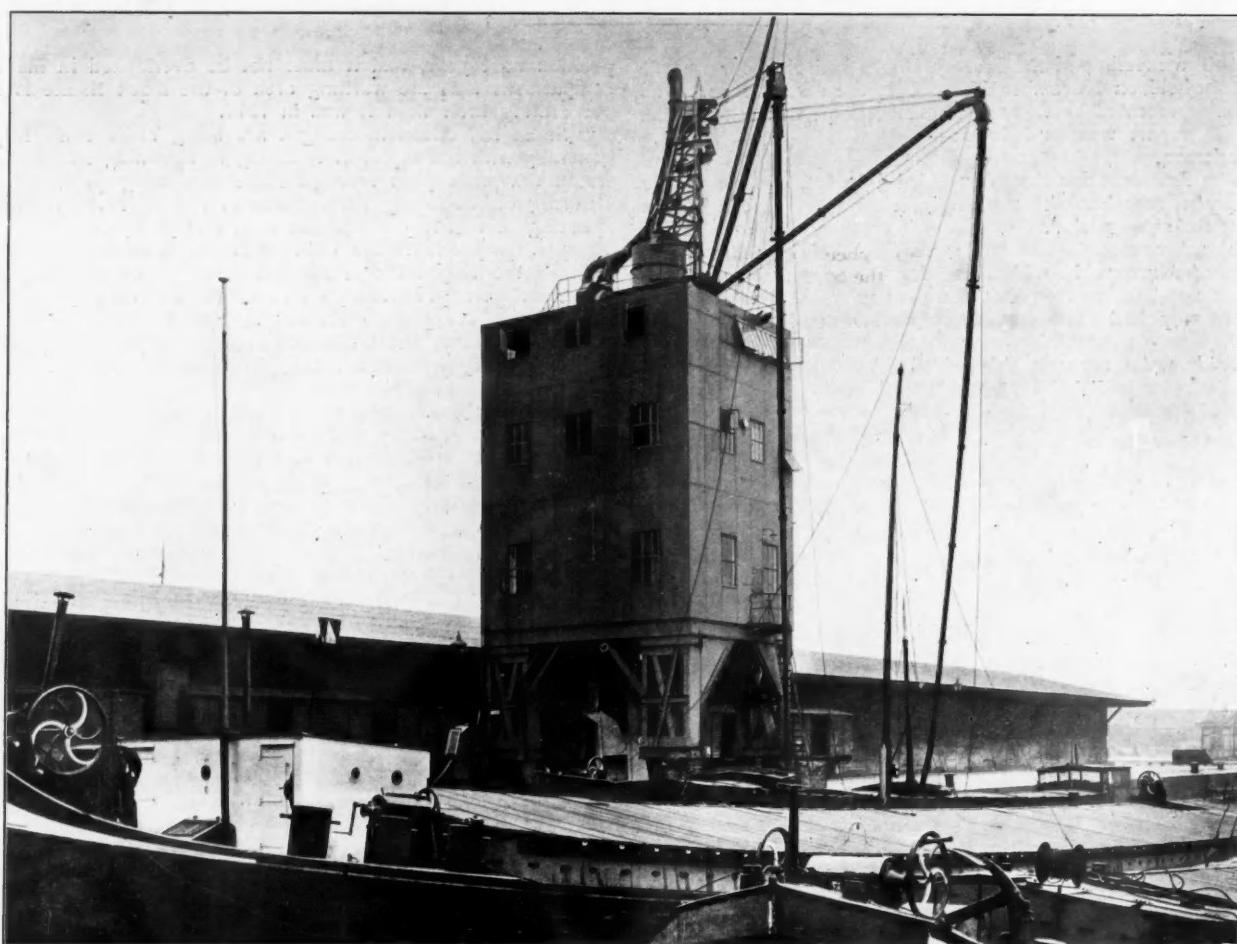
Mr. Mervyn O'Gorman, C.B., in introducing the subject, described the economic relationship of road and railway traffic and urged a greater appreciation of the value to the community of the great national asset of 180,000 miles of roads, which represented a capital of over one thousand million pounds sterling. He claimed that, by reason of heavy taxation on vehicles, errors in construction and lay-out of roads, and lack of orderliness in movement of traffic, the community as a whole did not obtain the benefit from its road property which was possible. The establishment of cheap internal transport was a vital necessity and would afford a greater stimulus to the industries of the country than any of the other means of assistance now being actively considered.

In the discussion which followed, Sir Henry Fowler, Mr. Du-Plat-Taylor, Mr. Fereday and others discussed various improvements in the management of road traffic mentioned by the introducer and several important comparisons were drawn with practice in foreign countries.

In concluding the discussion, the Chairman mentioned the rapid increase in speed of traffic in recent years as one of the factors which must be reckoned with in the future in any consideration of transport development. He suggested carrying forward the curve of progress in speed during the last 20 years so as to obtain an idea of possible progress during the next two decades.

Grain Handling at the Port of Antwerp

Introduction of British Suction Plant



"Simon" Travelling Pneumatic Plant discharging a Grain Barge at Antwerp.

THE pneumatic system of discharging grain has been extensively employed at the Port of Antwerp for some years and numerous elevators, all of the floating type, are used for the purpose. The pneumatic plants at the Port have, up to the present, been exclusively of Continental construction and it is particularly gratifying, therefore, to be able to record the latest addition to the grain discharging equipment at Antwerp is a travelling suction plant built by a British firm. The new plant has been built by Henry Simon, Ltd., the well-known conveying and handling engineers of Cheadle Heath, near Manchester, to the order of S.A. Les Magasins à Grains D'Anvers, under the supervision of the consulting engineers, Messrs. Kinart & DeCavel, Director and Chief Engineer respectively of the Port of Antwerp Authority.

The plant has been designed for unloading grain from ocean-going steamers as well as from barges. While unloading, the grain can be delivered in bulk into barges or on to band conveyors arranged below the quays, or in sacks to railway wagons.

The plant is thus capable of performing all the grain handling operations required when the discharge of ships is carried out by the Magasins à Grains.

The elevator has a maximum handling capacity of 90 tons of wheat per hour in bulk and has provision for sacking-off grain at the rate of 60 tons per hour.

At the official test of the plant which was carried out recently in the presence of Mr. DeCavel, one of the consulting engineers, and representatives of the Magasins à Grains, 412 tons of grain were discharged during a working time of 4½ hours, thus giving an average capacity of 86.7 tons per hour over the whole run. During one hour 96 tons of grain were discharged, a figure considerably in excess of the maximum rated capacity of the plant. It is interesting to note that these figures were obtained when discharging wheat from a barge under conditions which are naturally more difficult than when discharging from a steamer.

One of the special features of this elevator is the arrangement whereby the plant can be worked on either of two quays, which are at right angles to one another. This has been made possible by the provision of special devices for slewing the elevator tower at the crossings of the rail tracks on the two quays. The

elevator is lifted bodily by means of electrically operated jacks so that the travelling bogies can be turned at right angles to enable the elevator to travel on the other track. The fact that the elevator is required to work on two different quays necessitated a special arrangement of pipe mast and swivel joints for the discharging pipes so that they could be worked on either quay without any alteration being necessary. The grain shoots to the barges, subway conveyors and railway trucks were also specially designed for working on either quay.

The plant is carried on a square travelling tower of steel structure, which has been designed so as to permit the passage of wagons between the tower legs when working on either quay. A swivelling bogie is arranged at each corner of the tower, two of the bogies being mechanically driven for traversing the tower on either quay. One bogie carries a cable drum for the electrical power, connection being made with plug boxes provided at suitable points along the quays. The tower is built of Belgian steel sections covered with flat sheets and floors of chequer plate. Metal window frames, steel companion ways and access platforms have been provided together with suitable partitions on all floors to ensure clean and comfortable working conditions throughout the plant.

The special crane post and discharge pipes for the steamers are arranged above the covered-in tower, and in the legs of the structure at the bottom are the sacking-off platforms and shoots for use on either quay.

On the first floor of the tower is the electrically driven turbo exhauster, the bulk discharging hopper for delivery to barges and subway conveyors and the discharge shoots for sacking-off to trucks, the elevator boot, traversing gear and jacking gear.

On the second floor is the electrical control room with all the instruments, the main bulk weighing machine and the four sacking-off weighing machines.

The third floor houses the hoppers above the weighing machines, the tipper, receiver, dust discharge arrangements, including cyclones, and the control cabin for the operator handling the pipes.

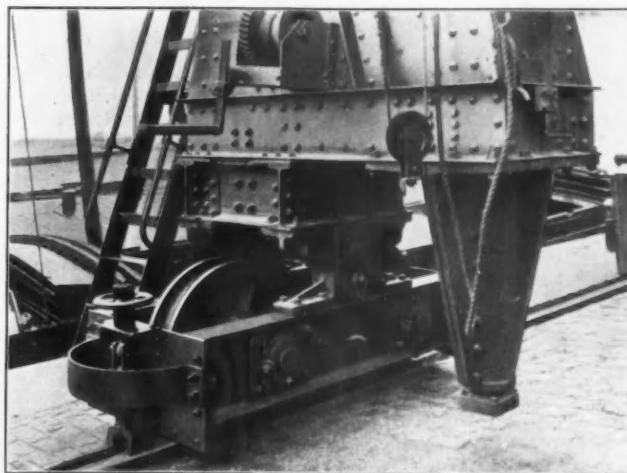
The grain is drawn through the pipes to the receiver, where it is discharged into a large hopper and weighed over a 2,000 kilo hand-weighing machine of the decimal type as specified by

Grain Handling at the Port of Antwerp—continued*The Instrument Room.*

the Magasins à Grains. It can then either be shot direct to barges or to sub-way conveyors, or, alternatively, to the boot of a bucket elevator feeding four Chronos weighing machines, each weighing 100 kilos per tip. These discharge to the sacking-off platforms for filling the railway wagons.

The dust is dealt with by an internal cyclone in the receiver and can either be delivered separately or re-mixed with the grain; when dealing with extra dusty grain, a second cyclone can be brought into use.

The nozzles are of the "Reform" Camel back and torpedo type for handling floor cargoes or bulk cargoes respectively. The flexible pipes are of steel articulated sections, encased in flexible covers. A telescopic section is inserted vertically in the pipe to facilitate trimming and to avoid continual changing of pipe lengths. Above the telescopes there is a short flexible and a socket joint which obviates kinking of the flexible. The bends are of rectangular section with renewable pieces. The booms themselves are of weldless steel, connecting to specially designed ball joints to avoid the use of flexible pipes. The pipe booms are handled by a derrick and separate hand winches are provided for lifting spare pipes when required or for carrying out repairs. The tackles for operating the pipe booms and telescopic sections are brought together and are operated by a multiple drum winch of special design which can be controlled by the man in the top cabin. Limit switches and solenoid brakes are provided on the booms to prevent overwinding. A vacuum release valve is fitted in the control cabin for breaking the vacuum in case of emergency.

*Trailing Bogie, with Jack on right.*

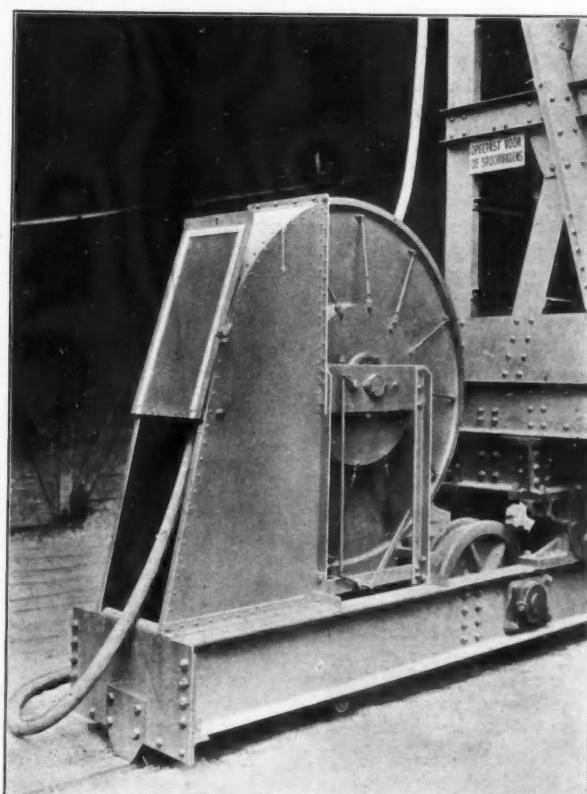
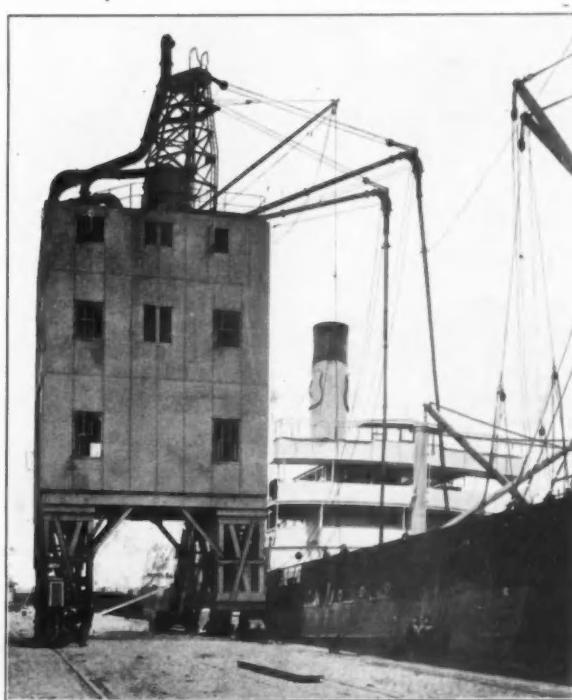
The receiver is of steel plate construction, fitted with an internal cyclone and provided at its base with a tipper of special design which permits of continuous working under all conditions. Obstructions caused by pieces of wood, iron, etc., are cleared automatically without stopping the tipper, which is provided with spring driving rods for the purpose.

The dust seals are of the rotary type with pockets, alternately filling and discharging. The dust is conveyed by worm conveyor to the grain hopper or, in special cargoes, it can be sacked off separately. The dust can also be weighed on a separate platform weighing machine, which is provided for this purpose.

The tipper, seals and worm conveyor are driven by a 5 h.p. motor.

The tipper hopper is of steel plate construction, fitted with serrated outlets, having carefully balanced slides for feeding the decimal weigher. These are operated by the weighing-machine man in conjunction with the balancing of the arm and the discharge arrangement. The weighing machine is of 2,000 kilos capacity and, as already mentioned, is of the decimal unit type with multiple beam and sensitive balance. The machine is totally enclosed to ensure cleanliness in working. The hopper below the weighing machine is of the two-way type of large capacity for either feeding a bucket elevator or discharging overside through a telescopic shoot to barges, the same shoot being used for discharging to subway conveyors.

The bucket elevator is of the belt type, steel encased, dust-tight, driven by back gearing and chain drive by a 5 b.h.p. motor. The elevator delivers the grain to a four-way reserve hopper placed over the sacking-off weighers. Slides are fitted over each weighing machine. The weighing machines are of the Chronos type, 100 kilos capacity, and deliver the grain by shoots to the sacking-off platforms at the railway wagon sidings.

*The Cable Drum.**Discharging an Ocean-going Grain Ship.*

Grain Handling at the Port of Antwerp—continued

The machines are enclosed in a separate compartment and are operated by the men engaged in sacking-off.

The turbo exhauster is by Messrs. Brown-Boveri and is mounted, together with the gearing and motor, on a steel electrically-welded bedplate. The turbo is fitted with special controlling devices which adjust the speed of the motor accord-



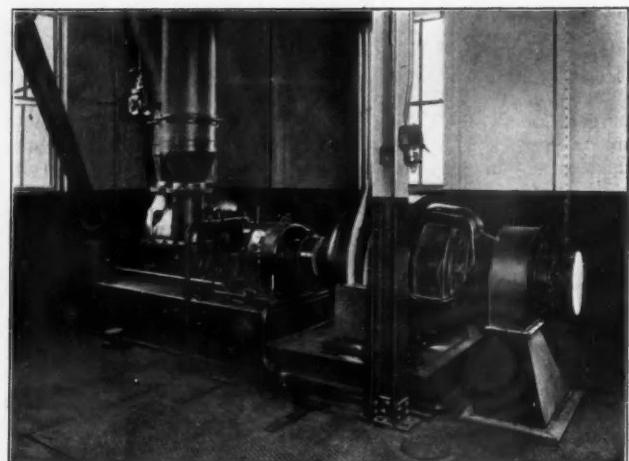
The Control Room, showing Rope Winches.

ing to the loading permitted by the discharging conditions of the grain, so that it is not possible to overload the machine should it become glutted with air. The control is automatic, but can be hand controlled if required.

An electrically recording device of the Cambridge Instrument Co.'s is fitted to register vacuum, kilowatts and weighing machine tips, so that the performance of the machine can be judged at any moment.

The whole of the electrical arrangements were carried out by Henry Simon, Ltd., up to the plug boxes in the quay. A motor generator set is provided for the lighting and for supplying current to the small motors in the system of automatic control connected with the turbo exhauster.

The plant was designed at Messrs. Simon's works at Cheadle Heath, near Manchester, and special machinery was provided from there, but certain of the machinery was built in Belgium to the order of their Brussels' branch, and the steel structure was also of Belgian material, but to drawings supplied by the designers.



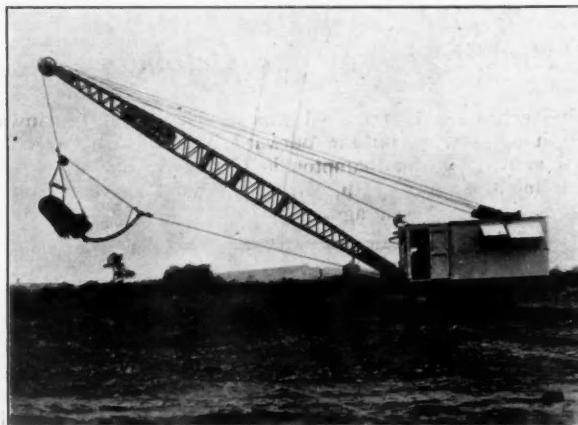
Turbo Exhauster with motor.

As shown, the plant has already undergone tests which have demonstrated its ability, under actual working conditions, to exceed the guaranteed capacity. It is also interesting to note that the consumption of electric power is less than the figure that had been specified. We understand that the plant—the first of its type to be installed at Antwerp—is giving complete satisfaction and that the results obtained have clearly proved its efficiency.

A New Ruston-Bucyrus Excavator

Ruston-Bucyrus, Ltd., announce the addition of another excavator to their line of standard Diesel driven machines.

This new machine, known as the 52-B, can be equipped for use as dragline, shovel, grabbing crane or crane, and should prove particularly useful to large Public Works' contractors, Government P.W.D. engineers, Drainage Authorities and quarry owners.



The New 52-B Diesel-driven Excavator.

(This shows a special wood housing for tropical conditions, but the standard housing is of steel)

The 52-B is the largest "Straight-Diesel" convertible excavator which the firm has produced, and is fitted with a 6-cylinder "Ruston" Diesel engine of 160 B.H.P. This engine is of the latest Ruston design and is specially built for excavator duty.

The ample power available makes the machine unusually fast and powerful and enables the operator to obtain big outputs with ease.

As a shovel, the 52-B is fitted with a bucket of 2½ cubic yards level capacity, with a boom 31-ft. long, or alternatively it can

be fitted with a bucket of 2 or 1½ cubic yards capacity with correspondingly greater boom length.

As a dragline or grabbing machine big working ranges are obtainable, as the booms vary in length from 50 to 75-ft., in ratio to the bucket capacity, which varies from 2½ to 1½ cubic yards.

The standard width of the caterpillar tracks is 36-in. Extra wide caterpillar tracks are available when necessary, having a width of 42-in. and a bearing area of 111 sq. ft. The extra wide caterpillar track enables the machine to travel over very soft ground, and this is a particularly useful feature for dragline work.

The 52-B is a strong, fast and economical excavator, embodying the following up-to-date features of excavator design:—

All high speed shafts are mounted on ball or roller bearings.

Main transmission and slewing gears are fully enclosed and run in oil.

All travelling gears on the lower framing are fully enclosed and run in oil.

The steering is easily and completely controlled by the driver with the superstructure in any position.

The travelling gears are positively driven and are independent of the slewing gears.

These are fitted on splined shafts.

A large diameter slewing ring is fitted with twin tapered rollers in front.

The centre post is of forged steel. The digging and hoisting clutches are power operated.

The large brakes and clutches are readily accessible, so that linings are easily renewed when necessary.

Split laggins on the drum permit quick change from one equipment to another and enable the most suitable working speeds to be obtained with any equipment.

When cheap electric power is available, an electric motor can be supplied with the 52-B excavator in place of the Diesel engine.

A fully illustrated catalogue describing this machine can be obtained on application to the makers, Ruston-Bucyrus, Ltd., Lincoln.

Canadian Notes

New Business for the Port of Halifax, Nova Scotia.

As a result of a new co-operative agreement between the Canadian Pacific Railway Company and the Canadian National Railways recently signed by Mr. E. W. Beatty and Sir Henry Thornton, heads of the respective systems, Halifax will become a port of call for Canadian Pacific liners, the arrangement going into effect on winter sailings. Halifax becomes linked with Saint John as a port of arrival and departure for the Canadian Pacific vessels in the Atlantic passenger service, and in addition the line of fast freight vessels maintaining service between Saint John and the ports of Hamburg, Antwerp, London and Havre will call at Halifax on their eastbound voyages.

The new business for the port of Halifax began with the arrival of the s.s. "Montclare" on November 28th, the same vessel reaching Saint John the following day. The winter schedule announced by the Canadian Pacific Steamships, Ltd., shows twenty-five passenger arrivals and departures in the season December to April and, through the arrangements recently completed, seven liners will be brought into Halifax. The vessels calling at Halifax eastbound and westbound in the maintenance of the service to Liverpool, Belfast and Glasgow, and to some extent to Cherbourg, Southampton and Antwerp, are the "Duchess of Bedford," "Duchess of Richmond," "Duchess of York," "Montclare," "Montrose," "Montcalm" and "Melita."

Five 10,000-ton freighters of the Beaver class will be calling at Halifax after leaving Saint John on their voyages to European ports, and a total of nineteen voyages in each direction is scheduled for these vessels during the winter season.

While Saint John, New Brunswick, will continue, as in the past, to be the winter Canadian Pacific terminal port, the agreement which brings the vessels of that line into Halifax and to the connection at the Nova Scotia capital with the Canadian National Railways is one designed to enable the two Canadian Railway systems to work together to promote rail and steamship business originating across the Atlantic or that goes through or from Canada to European ports. The Canadian National Railways will co-operate with the Canadian Pacific Railway and the Canadian Pacific Steamships in the advertising and solicitation of freight, passenger and express traffic for Canadian Pacific ships to and from Canadian Atlantic ports. The official announcement stated that: "In order to serve the Canadian National Railways all Canadian Pacific passenger ships sailing to and from Saint John, N.B., will call at Halifax, N.S., on both their westbound and eastbound voyages, and Canadian Pacific freight ships sailing from Saint John on eastbound voyages will also put into that port."

Canada—United States Waterways.

The resumption of the negotiations relative to the Great Lakes-St. Lawrence Waterway has occasioned a revival of

interest in the volume of traffic likely to be available should the St. Lawrence River be further canalised for the transportation of goods from the Great Lakes to the Atlantic Ocean.

In this connection some figures published in the "Shipping Register" (Montreal) of October 7th will be of interest as comparing the traffic handled by the larger waterways in the world.

The following table shows the tonnage of freight passing through the Panama and Suez Canals during the past five years:—

Year	Panama	Suez
1926	29,161,942	28,458,080
1927	31,078,001	33,066,880
1928	33,186,391	36,536,640
1929	34,341,671	38,657,920
1930	33,633,859	31,932,320

It is not generally realised, however, that Canada and United States traffic on the Great Lakes is far in excess of the tonnage passing through these world-famed waterways, as is evidenced by the following figures for the Sault Ste. Marie Canals and the Detroit River:—

Year	Sault Ste. Marie	Detroit River
1926	85,679,087	95,003,604
1927	83,354,064	97,188,281
1928	86,992,997	100,219,634
1929	92,622,017	110,719,845
1930	72,897,752	94,155,889

The Sault Ste. Marie canals, it will be seen, pass annually more than twice as much tonnage as either the Panama or the Suez Canal, while the Detroit River—which, like the Suez Canal, is without locks, bears three times the movement through the Panama Canal and two and one-half times that of the Suez Canal. Both of these Great Lakes connecting links carry more freight than the Panama and Suez Canals combined. Furthermore, for climatic reasons, this great volume of traffic is handled during a period of eight months only as compared with the full year for the other canals.

The new Welland Ship Canal, though already being used for traffic, will not handle its full capacity for several years, although its tonnage is likely to increase with the passage of the large upper lake freighters into Lake Ontario. Movement through the Welland and St. Lawrence Canals during the past five years was as follows:—

Year	Welland Canal	St. Lawrence Canals
1926	5,214,514	6,123,701
1927	7,247,459	7,912,952
1928	7,439,617	8,411,542
1929	4,769,866	5,718,651
1930	6,087,910	6,179,028

The last four compilations show the volume of traffic passing through the existing Great Lakes-St. Lawrence system to Montreal—21-ft. deep at the upper end, 27-ft. deep in the middle, and 14-ft. deep at the lower end.

Southampton Dock Statistics show Big Decreases for October

Southampton Docks statistics for October, with corresponding figures for the same month in 1930, have just been issued by the Southern Railway Company. They are not particularly gratifying, for under all the headings under which the port's traffic is classed there is a very noticeable decrease.

The number of vessels inward fell from 312 to 270, and outward from 310 to 272; 42 fewer inward and 38 vessels outward. The gross tonnage fell back by 144,224 inwards, the total being 1,418,258, as compared with 1,562,482, whilst outward there was a slump of 50,426, the aggregate dropping from 1,414,989 to 1,364,563.

In net tonnage the inward figure dropped by 75,040, and outward by 86,891, the respective figures being 754,731 inward, as against 829,771 in October, 1930, and 737,240 as compared with 824,131.

The statements which have been going the rounds of Southampton in regard to dumping, supposed to be taking place on a large scale, are discredited by the fact that imported freight dropped by 6,567 tons during October, the total slipping back from 57,589 tons to 51,022 tons. The exports also declined considerably, this October's figure of 27,558 tons falling 6,505 short of the total for the corresponding month last year.

The number of passengers slumped during October, as was only to be expected in view of the fewer vessels in commission, and the fact that the passenger business, particularly on the North Atlantic route, has not been at all good.

The totals were:—Inward 11,608, compared with 19,510; and 15,540 as against 17,668 outward. The one heading under

which increases were recorded was in troops, for the inward figure jumped 364, and the outward 941. There were no troops arriving at Southampton in October, 1930, as against 364 during the past month, and outward 3,826 were handled, as against 2,885 a year ago.

Messrs. Henry Simon's New Venture.

Messrs. Henry Simon Ltd., Cheadle Heath, Stockport, announce that they have taken over the business which has been carried on for many years by Messrs. Turbine Gears Ltd., Hyde, and that, in future, the manufacture of double helical and other gears will be undertaken at Messrs. Simon's extensive works at Cheadle Heath.

In order to retain the individuality, a new company has been formed, and the trading activities of the gearing section will be carried on as: Turbine Gears Ltd. (Subsidiary of Henry Simon (Engineering Works) Ltd.); all communications should be addressed to Cheadle Heath, Stockport. We understand that the technical and designing staffs of Messrs. Turbine Gears Ltd. have been retained, and that special gear cutting machinery from the Hyde works has been transferred to Cheadle Heath, where Messrs. Simon already have up-to-date plant upon which the greater part of the gears for their standard products are produced. The extended plant is now capable of dealing with gearing up to the largest requirements for all general purposes.

Some Notes on Legal Decisions

THE recently published volume (No. 20) of the Railway and Canal Traffic Cases reports a number of decisions containing matters of special interest to our readers, which are not to be found in the usual law reports or other ordinary publications. We here take the opportunity of briefly noting these.

Section 74 of The Harbour Docks and Piers Clauses Act, 1847, provides that except in the case where vessels are in charge of a compulsory pilot, the owner of every vessel shall be answerable for any damage done by it or by any person employed about the same, to a harbour, dock or pier or the quays or works connected therewith. The House of Lords held in *Great Western Railway v. Mostyn* (1928) A.C. 57 that the liability of the owner of a vessel doing such damage is not conditional on negligence being proved; he is responsible for the damage whether occasioned by negligence or not provided that at the time the damage was done the vessel was under his control as owner or under the control of his agents.

The defendants in *Forbes Abbott and Lennard v. Great Western Railway Co.*, 33 Com. Cases 79, were the owners of a dock having access through a lock to the River Thames. The defendants advertised the terms and conditions on which they allowed barges to use the dock, and one of these conditions provided that "all barges or vessels while in Chelsea Dock are at the sole risk of owners or persons bringing or causing same to be brought into the dock." A barge belonging to the plaintiffs was sent into the dock to receive a cargo of coal, and when leaving the dock after the cargo had been loaded, grounded on the outer sill of the dock and suffered injury. The plaintiffs claimed damages on the ground that the accident had happened because the dockmaster employed by the defendants had negligently allowed the barge to leave when owing to the state of the tide the depth of water in the lock was not sufficient to allow the barge to be safely floated out. In an action brought to enforce the claim and heard by Avory, J., and a jury, the plaintiffs obtained damages and the defendants now appealed. The defendants denied that their servant had committed any breach of duty towards the plaintiffs, and they also contended that even if negligence were proved they were protected by the condition providing that all barges while in the dock were at the sole risk of the owners. It was held (1) on the facts that there was evidence of negligence on the part of the defendants' servant, the dockmaster; but (2) that the condition relied on, which was admittedly part of the contract between the parties, was sufficient to relieve the defendants from liability for negligence on the part of their servants while barges were in the dock: and as for the purposes of this case the entrance lock formed part of the dock the appeal must succeed.

A lighterman while navigating his barge from a dock, belonging to the Port of London Authority, through the entrance lock into the River Thames, was under the order and directions of the Authority's servants. He was directed to take a rope on board and attach it to his barge. The rope broke and struck the lighterman who was on board the barge, and who was thereby injured. He claimed to recover damages from the Port Authority, alleging that his personal injuries were due to the negligence of their servants. The Port Authority relied in their defence upon the terms of a notice which was exhibited on the pier-head, of the lock, and of which the lighterman had admittedly noticed. The notice provided that "Lightermen and others availing themselves of the facilities and assistance of the servants of the Authority in bringing their craft into and through the entrances of the docks must do so at their own risk and upon the understanding that no liability whatsoever shall attach to the Authority or its servants for any loss, damage or injury from whatever cause arising to or by the craft, or to or by any person or goods on board thereof." The jury found that the plaintiff had been injured through the negligence of the defendants' servants, and that the plaintiff had no option to refuse to take the rope on board. It was decided, *Wickett v. Port of London Authority* (1929) 1 K.B. 216, that the defendants were exempted from liability for the negligence of their servants by the terms of the notice exhibited on the pier-head, of which the plaintiff had notice, and that the fact that the plaintiff was compelled to navigate his barge according to the direction of the defendants' servants was not inconsistent with the fact that the plaintiff was in the circumstances "availing himself of the facilities and assistance of the servants of the Authority," and, therefore, according to the terms of the notice the defendants were under no liability for the injury sustained by the plaintiff.

The case of the *Manchester Ship Canal Co.* 1930, 1 K.B. 547, in which it was held (1) that the duty of complying with

regulation 34, by fencing or covering a hatch which was not in use but which had been used during the process of unloading a ship, lay upon the person who by himself, his agents or workmen carried on the process of unloading, and not upon the owner, master or officer in charge of the ship; and (2) that for the purposes of the Factory and Workshop Act 1901 the covering of a hatch which had been used for the purpose of unloading the ship was ancillary to the main work of unloading, and that the work of unloading was not completed till the hatch was covered, has been already dealt with in this column, and beyond the above reminder, no further notice is necessary.

The Port of Bristol.

The monthly import figures for September are now available, and it is a matter of interest that the grain importation is the highest recorded for any one month in the history of the Port. During September 157,909 tons were handled without congestion of any kind, this being due to the up-to-date machinery installed at Avonmouth for its discharge and storage.

Another large import for the month is that of bananas, the figure being 938,481 bunches, which has only once been exceeded.

Much interest attaches to the direct loading of cargo from the Canadian Great Lakes to the United Kingdom. The s.s. "Henneseid" is bringing a cargo of grain and general goods to Avonmouth without the usual transhipment at Montreal. A feature of this vessel is her shallow draft made necessary by the limitations of the locks and river en route from the Lakes to Montreal.

The Vickers-Nash Safe Load Indicators for Cranes.

Attention is drawn to the Home Office Order, which came into force on November 1st, in connection with the Building Regulations in respect of Cranes used in certain Building operations having a fixed Jib or a Derricking Jib. This Order calls for an Automatic Indicator to be fitted to all such Cranes (with certain date reservations) of a type approved by the Chief Inspector of Factories. It is laid down in the Home Office Order that all such Indicators shall show clearly to the driver or person operating the Crane when the load being moved approaches the safe working load of the Crane at any inclination of the jib, and shall also give an efficient sound signal when the load being moved is in excess of the safe working load of the Crane at any inclination of the Jib.



The Vickers-Nash Safe Load Indicator fitted to a crane.

The only Indicator on the market that has been approved by the Chief Inspector of Factories is the Vickers-Nash Safe Load Indicator, which is manufactured by Messrs. Vickers-Armstrong Ltd., at their Dartford Works, by the use of which a practical certainty is now available instead of a doubtful judgment of a Crane Driver or his "Slinger" as to whether a given lift may be safely undertaken.